

DISCUSSION BOOKS

General Editors :

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THE GEOGRAPHY BEHIND HISTORY

No. 12

" . . . the rills that rise
Sing such a history
Of come and gone,
Their every drop is as wise
As Solomon."

WALTER DE LA MARE, *All That's Past*.

" If joined together, (History and Geography) crown our
reading with delight and profit; if parted, (they) threaten
both with a certain shipwreck."

DR. HEYLYN, *Cosmographia* (1649).

THE GEOGRAPHY BEHIND HISTORY

by

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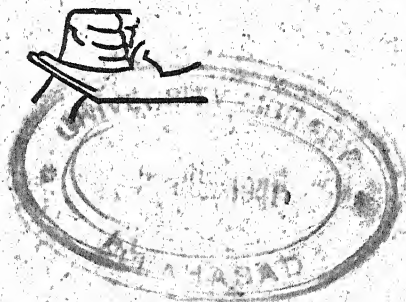
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WITH 64 MAPS

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CHAPTER I

GEOGRAPHY AS AN HISTORICAL DOCUMENT

"And these are things that come not to the view
Of slippered dons who read a codex through."

FLECKER, *Invitation*.

EVEN to-day, if only by its more dramatic interventions, a relentless nature makes us painfully aware of the uneasy terms on which human groups occupy and utilize the surface of the earth. The common boast that man has become master of his world has a hollow ring when we recall the recurrent floods and famines which afflict the peasants of northern China, the devastating floods of the Mississippi in 1937, the more recent destruction by ice of Vieux-Falls Bridge across the Niagara River, the assertion that in Central Africa "the desert is on the move," the widespread soil erosion in parts of Africa and in the Middle West of the United States, and finally, the continual threat of drought which hangs over the great grain lands of the world—alike in the United States, Canada, and South Russia. These and similar happenings or forebodings serve to emphasize the fact that, even for peoples which have reached high levels of material culture, the physical environment remains a veritable Pandora's box, ever ready to burst open and to scatter its noxious contents.

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And if it is clear that we cannot to-day, with all our resources of science, technique, and motive power, evade or control all the dangers and difficulties which are implicit in our habitat, how much more severe and forbidding must these have been in earlier stages of human history, when men were ill equipped to try and adapt the physical stage! So much so, that in its beginnings, it is often said, history is all geography, for we know that, at a primitive stage of culture and for countless millennia, folk lived on the sufferance of an omnipotent nature which they were powerless either to modify or to exploit. In the course of history, however, if they never learnt fully to control nature, many different peoples in different parts of the earth succeeded, by understanding it, to make better and better adjustments to it.

It would be misleading to envisage the geography behind history solely in terms of the dramatic episodes in which it plays continually a leading part. It is not so much by its more violent manifestations—its earthquakes and volcanic eruptions, and its hurricanes and its floods—as by the expression of its normal everyday personality that the physical environment left its mark on human history. If we assume that, however extensive its province, geography includes above all the study of physical environment, our central problem is to discover in what ways and to what extent this environment affected history. For the environmentalists who, following the lead given by certain philosophers of ancient Greece, sought to explain the manifold complexities of historical phenomena in terms of a single factor—geography, this question was easily solved. This geographical determinism, so-called, which found in the differences in geographical endowment from place to place a visible master key to history, has not for some time found authoritative support, and A. J. Toynbee, who restated its case recently in the course of a general discussion of historical causation,

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had no difficulty in showing its inadequacy.¹ But if we cannot accept as worthy of credence a complete geographical interpretation of history, what is the proper place to be assigned to geography in the study of history?

The claim of geography to be heard in the councils of history rests on the firm basis that it alone studies comprehensively and scientifically, by its own methods and technique, the setting of human activity, and further, that the particular characteristics of this setting serve not only to localize but also to influence part at least of the action. The familiar analogy between geography and history as the stage and the drama is in several respects misleading, for whereas a play can be acted on any stage regardless of its particular features, the course of history can never be entirely unaffected by the varieties and changes of its setting. History, again, unlike drama, is not rehearsed before enactment, and so different and so changeable are its manifestations that it certainly lacks all unity of place, time, and action.

In short, in studying the inescapable physical setting to history, the geographer studies one of the elements which make up the compound, history: he examines one of the strands from which history is woven. He does not assert foolishly that he can detect, still less explain, all the intricate and confused patterns of the tapestry. He does assert, however, that the physical environment, like the wicket in cricket, owing to its particularities from place to place and from time to time, has some bearing on the course of the game.

Before we discuss more fully the contribution which geography can offer to history, we may pause to inquire what is the nature of history itself. In his ambitious task to unfold and interpret human thought and action as these were ever changing in place and in time, the historian relies essentially on the literary record,

¹ A. J. Toynbee, *A Study of History*, vol. i. (1934), pp. 249-71.

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incompletely and sporadically though this has survived. But—as he continually enlarged the field of his investigations from the deeds of kings and heroes and from the fortunes of kingdoms and empires to the everyday life of “the mere uncounted folk”—the historian has been compelled to make use, not without profit, of the collateral work of other social scientists, such as the archæologist, the anthropologist, and the experts in linguistic and place-name study. Since for certain periods and areas the literary and other historical data are scanty or conflicting, and since, however adequate the record, written history, despite every precaution of care and honesty, must reflect in some measure the personal outlook and interpretation of the historian; and since, too, every generation should and does write its own history—for these and similar reasons, a critic might suggest that, as Goethe's Faust put it and as Napoleon professed, “history is the invention of historians.” Some historians, notably A. J. Toynbee, believe, however, that the events of history conform to patterns, or possess an inherent rationality, which exists independently of the historian's mind. On the other hand, H. A. L. Fisher, who is no less entitled to pronounce judgment on this philosophic issue, finds in history “no plot, rhythm or pattern, but only a series of emergencies, the play of the contingent and unforeseen.” In any case, whatever theory of history we may adopt, we must agree that a great deal is now known about the past, especially about the last 6,000 years or so, during which civilized life existed in certain parts of the earth. We need not, following Dr. Inge in a cynical mood, agree that “the things that we know about the past may be divided into those which probably never happened, or those which do not much matter.” Rather we must be impressed by the great mass of ascertained knowledge which has been, and is being continually, accumulated, thanks above all to an intensive monographic research which,

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by scientific method and great specialization, historians practise to-day. And whether he takes for his canvas the problems of a small area during a short period, or whether he is concerned with the problems of "societies which have greater extension in Space and Time than national states, or city states, or any other political communities"—what A. J. Toynbee regards as "the intelligible fields for human study"—it is certain that at many points the historian can enrich and deepen his study by an understanding of the geographical background to his problems. For human thought and action have their springs, not in a spacial vacuum, but in some definite geographical milieu, which defines in varying degrees the character and orbit of human effort.

History and geography, it may be insisted, do not form the sharp antithesis suggested by those who would distinguish them broadly as the studies of Man and the Earth. The idea, not yet wholly dead, that history begins where geography leaves off, on the ground that the latter is concerned exclusively with physical facts, derives from a conception of geography which is no longer current amongst its practitioners. Certainly it cannot be over-emphasized that the central purpose of geography is the study of country—in all its many facets and in all its complex interrelationships—but country almost inevitably includes man, an important agent in its development, and an agent which we, as members of the only surviving human subspecies (*Homo sapiens*), are not prone to ignore. Since every historical event occurs both in space as well as in time, history cannot, except in some of its more specialized branches, be dissociated from country or place. For if "Geography without History seemeth a carcase without motion, so History without Geography wandreth as a Vagrant without a certaine habitation." Since history must concern itself with the location of the events which it investigates, it must continually raise, not only the familiar questions Why? and

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Why then? but also the questions Where? and Why there? And it is primarily to the solution of these latter questions that geography can contribute, "for it has been Nature, rather than Man, hitherto, in almost every scene, that has determined where the action shall lie. Only at a comparatively late phase of action does Man in some measure shift the scenery for himself." ¹ To allocate some of the above questions to separate fields of study, though it may be necessary in practice and though it may serve academic convenience, only erects a barrier across a single arena. The close association between history and geography which is enforced in the universities of France and has no parallel in our own, underlines the fact that these studies are continually and logically interrelated. For if history has something to gain from geography, geography, concerned though it is primarily with the present, stands no less in need of the illumination cast by history.

By the layman with small history and less geography, the latter in its modern form is the less understood. In its beginnings one of the intellectual products of Classical Greece, geography made great advances in Germany in the 19th century, and developed rapidly there and elsewhere during the last few decades. It remains, however, in many respects a youthful and growing science, for although the world has been virtually explored, much remains to be done to deepen our understanding of its constituent parts. It may be both useful and relevant to our present inquiry to indicate the present scope and purpose of geography, for, unless we were fortunate, the dimly remembered geography of our school days will avail us little. Just as the physicist is concerned with the study of the atom and its subdivisions, and as the sociologist is concerned with social groups of varying scale and complexity, so the geographer has for his unit of study the region.

¹ J. L. Myres, *Cambridge Ancient History*, 2nd ed. (1928), vol. i., pp. 2-3. (4,719)

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The efforts of geographers, though diverse and many-sided, converge above all on one common goal—the discovery, description, and demarcation of regions—broadly uniform areas of country which can be distinguished on a scientific basis. But “regional geography” has more ambitious aims than this: though it is focused primarily on country in its physical aspect, it seeks continually to detect and to define the interrelationships which exist between human communities and the physical background to their work and movements. And the more important a region becomes to man, and the more complex becomes in consequence the interaction of Place and Folk, the more does it become a significant and intelligible field for geographical study.

The conception of the region forms the main citadel of geography. A region, whether it is large or small, consists of an area of country, not arbitrarily defined as on a sheet of a large-scale map, but distinguished by a certain uniformity in either a physical or a human sense. The geographical elements which are compounded in any area of land, which can be analysed separately but are in fact interdependent, range from climate, position, structure, land forms (including relief and drainage), soils, and vegetation, to human societies themselves and all that they have engraved upon the soil. We must note, too, as another distinct feature of any place, the presence of wild and domesticated animals, of fish and of insects, such as the anopheles mosquito and the tsetse-fly, which have an obvious importance as environmental facts. It is easy to see how very interdependent are these many ingredients of any place. The position of an area in latitude, that is in relation to the sun, broadly determines its climate, though this is governed also by its position in relation to land and sea and also by its elevation and aspect. Climate, too, acting through the natural vegetation, is often the chief determinant of soils, although these may have weathered from local

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rocks, or have been transported through the agencies of ice, water, or wind. Climate and soils, again, set limits to the range of permissible vegetation, and thus condition the food supplies of man and beast.¹ The geological structure of an area provides the chief key to its land forms and relief features, as it serves also to indicate where, and at what levels, resources of water, coal, petroleum, and metals may be sought.

All these and other interconnected factors condition, though they do not determine, the activities of man, who is himself no mean agent of geographical change. He can, and from early times did, modify drainage, soils, and natural vegetation. If in only a minor degree, he can alter the relief of the land—witness the great tip-heaps of our mining districts. Clever as he is, man must take climate as it comes, although by careful observation he can try and predict the vagaries of weather and modify their effects. By resort to irrigation, where this is possible and profitable, by erecting screens against harmful winds, by using glasshouses, and by plant breeding, he makes use of the climates which he cannot control. He can also, though this marks a modern phase, escape in some measure from the limitations of climate by the practice of substitution: by growing sugar beet where the sugar cane will not grow, and by making synthetic rubber in temperate latitudes. The recent attempts in Arctic Russia to grow green vegetables beneath the frozen subsoil by means of electric light and heat, derived from wind power, show the lengths to which human ingenuity can go, although flying in the teeth of climate usually proves an expensive hobby. You could probably grow potatoes even at the North Pole, it has been suggested, if you put a university professor beside each potato to make it grow! ²

¹ See below, Chapter VII.

² See H. P. Smolka, "The Economic Development of the Soviet Arctic," *The Geographical Journal*, LXXXIX (1937), pp. 327-38.

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Since the geographical texture of any tract is made up of so many interwoven strands, how is it possible to distinguish regions which in some important respect form uniform entities? In fact, this task can be attempted in so many ways that the captious critic might affirm that regions exist only in the minds of geographers. But reflection will suggest that certain kinds of regions, namely those which are styled "natural" or "physical," possess an objective existence that can be easily demonstrated to whomsoever has eyes to see. These physical divisions of the land, even though their boundaries may be zones rather than lines, are differentiated in terms of climate, structure, land forms, or soils, or of some combination of these. Climate suggests the first simple subdivision of the earth's surface into regions where, under broadly uniform climatic conditions, vegetation, whether natural or cultivated, has distinctive characteristics and significant limitations. Soils often provide in continental areas a sharp indication of major changes in the geographical background. Thus, on the Russian plateau, which consists of an unyielding crust-block, a deep cover of soils, dissimilar in texture and quality, is disposed along, roughly, east-west zones. Finally, in country of varied physique such as our own, a large number of small regions, which often retain a traditional nomenclature, are distinguishable on the basis chiefly of land forms. We may recall, as illustrations, our many vales—the vales of Pickering, Aylesbury, Holmesdale, and Pewsey; our many downland plateaux, with their abrupt escarpments and their gentle dipslopes—the Chilterns, the Yorkshire Wolds, the North and South Downs; our high moorlands—Dartmoor, the Scottish Highlands, and Stainmoor in the Pennines; our marshlands—the Somerset Levels and the great Fenland; and finally, a rare semi-steppe area, to-day tree-clad, the Breckland of west Norfolk.

In demarcating physical regions we divide up the

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present landscape as it has been moulded in the course of a long history, the events of which include the folding and faulting of rocks, erosion, glaciations, subsidences, and elevations. It will be obvious that the detection and demarcation of small regions calls for a special training, alike "in the field" and in the interpretation of geological and topographical maps, but it may be insisted that the fact, if not the detail, of regional differences in the "physique" or "build" of the land is self-evident. Nor from the standpoint of history can the importance of these differences be ignored, for in the main they are of a permanent order, and if they are understood in their present form, this understanding can be applied to the study of the past.

The geographer, then, seeks to discover the patterns which have been etched on the surface of the earth, to find some symmetry in what appears at first sight a confused and disordered scene. When he has found these regions, he attempts to show how far human communities are using the opportunities which they permit—in occupying and settling the land, in exploiting natural resources, in moving to and fro in the course of migration, trade, travel, and war; and finally, in adapting the region to their needs and in being, in turn, adapted by it. What is the bearing of all this on our inquiry into the geography behind history?

The answer is that by means of the regional method the geographer has evolved a distinctive mode of thinking which can be applied no less to the past than to the present with which he is mainly preoccupied. His knowledge of the diversity of the earth's surface can be thrown back into the historical past and thus becomes a document, not strictly contemporary it is true, but none the less revealing and relevant to the historian's task. Geography, at least in its physical aspect, provides a common denominator to all historical periods: more ancient than Methuselah, the land has witnessed and survived the advent of man

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and the ephemeral episodes of his purposive adventure. And, since the many differences in the form of the land—in its climate, its position, and its natural resources—set limits to human effort, these must be the historian's concern. It is not enough, in studying history, merely to consult the atlas map in order to ascertain the position and areas of countries or the location of battlefields and cities. Yet not so long ago the geography contained in sober historical writings was either entirely lacking or assumed this jejune form. Freeman's notable and still useful work, *The Historical Geography of Europe*, for example, included an atlas volume, the numerous maps of which showed no indication whatever of the physical features of this continent. To the uninitiated reader the inference was that the peoples and states of Europe developed on a uniform plane surface; yet, in fact, no area of comparable size appears so remarkably variegated as Europe, alike in structure, relief, and climate.

At this point the explorer into the borderlands of history and geography should cautiously halt. Can he safely claim stability for the conditions of physical geography, or, to use an alternative phrase, the "natural landscape"? Certainly geographical position in its absolute sense is immutably determined, but in a relative sense, as we shall discuss later,¹ position is a variable during historical times. Again, has climate, which in its direct and indirect effects is usually the most potent and exacting factor in any physical environment, remained constant throughout history? We shall turn to this problem later,² but we may note here that, despite many doubts and much controversy, the hypothesis of climatic change, especially in prehistory, cannot be safely ignored. In contrast, the morphology of the land—that is, its land forms, relief, and drainage features—show remarkable stability, since their normal changes are effected during much

¹ See below, Chapter II.

² See below, Chapter III.

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greater periods of time than that of history. Only to a small extent have morphological changes occurred during what is, measured on a geological scale, the minute span of human history. Even so, these small and sporadic physical changes have sometimes had significant human effects. Volcanic eruptions and earthquakes in regions of youthful structure; subsidence or elevation of the land relative to sea-level; changes in the courses of rivers and the silting of their estuaries; the erosion of coastlands and the accretion of new land along coasts through marine or fluvial agencies; the encroachment of the desert owing to the drift of wind-borne sand; the loss of soil through erosion, though this may be indirectly due to man's activities: such changes, however insignificant geologically, may have important human results. Further, it should be noted that, particularly in areas which have been long settled or intensively exploited, the natural vegetation which clothed the surface in the remoter prehistoric times has almost entirely disappeared, and even in relatively undeveloped areas, such as the Amazon and Congo Basins, some at least of the primitive vegetation has been removed.¹ So long and so persistent have been man's efforts to adapt certain lands to his use that, in respect of fauna, flora, and even soils, these present a "humanized" landscape very different from the natural landscape which confronted their first settlers. Egypt provides an excellent illustration of this fact,² yet it has been written³:

"Egypt is a palimpsest in which the Bible is written over Herodotus, and the Koran over that; the ancient writing is still legible through all."

¹ See below, Chapter VII., pp. 144-45.

² See below, Chapter VIII.

³ Cited by P. E. Newberry, "Egypt as a Field for Anthropological Research," *British Association Report, 1923* (1924), p. 193.

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And it is reasonable to infer that some of the traditional features of Egyptian life, which appear to this day—in religious ceremonial, in handicrafts, in dress and ornaments, as in the produce of the soil—owe something to the very distinctive physical setting which conditioned Egyptian civilization.

Whoever would attempt to reconstruct for any past period the geographical setting of any area undertakes, therefore, a task which calls for a certain technique, considerable care, and no less industry. The basic task is to discover the physical properties and potentialities of the area—to discover what economic possibilities existed, what facilities or difficulties it presented for movement within and for contact with the outside world, what natural defences it afforded, and what modes of life it permitted. If, further, he wished to extend his inquiry beyond the physical setting as such, and to try and find what were the human features engraved on the soil at a particular period, the student would have to embark upon a much more difficult task. He would have to discover what kinds of settlements existed and how they were distributed; what routeways were available; what mineral resources were being exploited, and where; how the land was being used; and how the population was distributed. Such an inquiry falls within the specialist field now generally known as "historical geography," for its chief purpose is geographical, namely the reconstruction of past geographies. Yet such an inquiry, if completed in so far as available evidence allowed, would be valuable to the historian no less than to the geographer. It would help to illuminate, on the one hand, economic and social history, and on the other, present-day geography.

Let us now state the upshot of this discussion. Since all human events occur in space as well as in time, the historian, though he is interested primarily in changes in time, cannot neglect the problems of

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location. Into these problems geography intrudes, for the setting to history limits man's freedom of action differently from place to place, and thus localizes many events. Further, the geography behind history affords at least a partial explanation of the means of livelihood sought by peoples in different areas.¹ Admittedly, "modes of life" are not rigidly enforced by physical circumstances. Human groups themselves—according to their stage of cultural development, their needs and their enterprise—determine their means of livelihood, as also their means of transport,² yet these are always restricted, sometimes very rigidly, by the nature of the habitat. Again, resort to geographical method sometimes throws unsuspected light on the facts of history. The geographer's practice of making "distribution maps" is not only a convenient and precise means of answering the question Where?; it may also suggest that distributions conform to patterns which can be explained in geographical terms. The established use of this method by archæologists, who have recognized for some time the importance of the spacial aspect of their discoveries, needs no justification, since it has yielded much fruit. That it can be applied with similar success to historical materials is already apparent, and will become increasingly evident. It must not, of course, be inferred that all distributions can be explained in terms of the physical background; the preparation of a distribution map is rather an experiment, which may or may not come off.

As an illustration we may examine briefly Greek colonization in the 5th century B.C. If a distribution map of Greek colonies is made (Fig. 1), and if it is studied in relation to other geographical facts and distributions, a number of conclusions can be drawn of historical value. The first and most obvious conclusion is that these colonies were strung out along the shores of the Mediterranean and Black Sea, as Plato

¹ See below, Chapter VII.

² See below, Chapter IV.

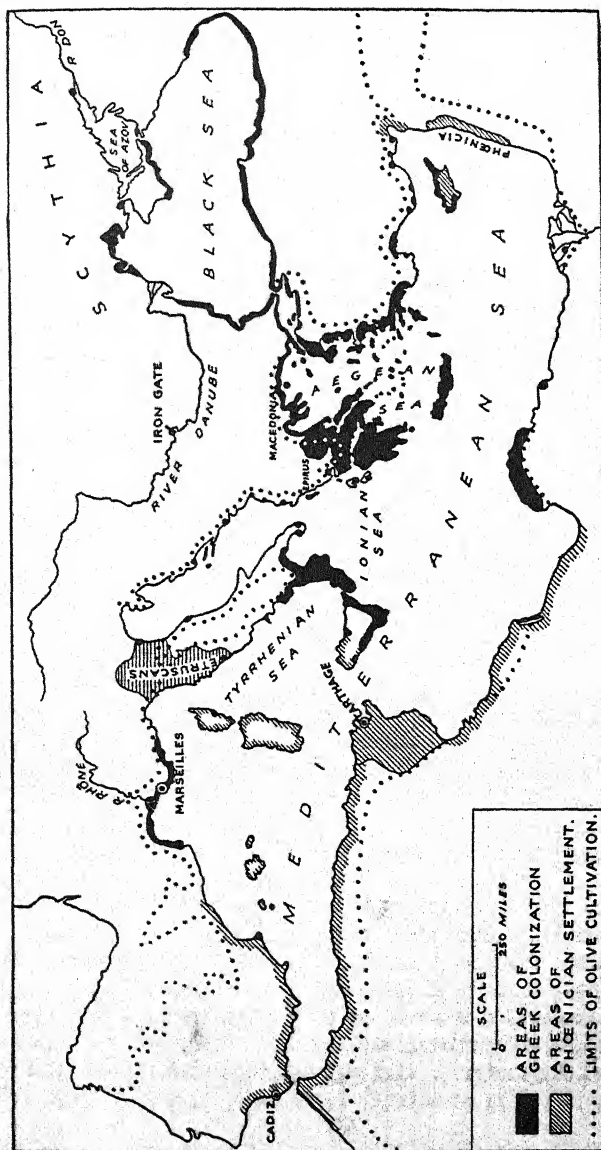


FIG. 1.—The Mediterranean World from the 7th to the 5th century B.C.

(Note that the limits of olive cultivation indicate the approximate limits of the Mediterranean type of climate.)

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put it, "like ants and frogs around a pool." It will be noted next that Greek colonies are relatively fewer in the western basin of the Mediterranean, where the Phœnicians and Etruscans had already established themselves. Finally, if account is taken of climate, vegetation possibilities, and of the "midland sea," it is found that the Greek colonies were so placed that the modes of life characteristic of Greece could be practised with little or no change: they could produce their grain, wine, and oil; pasture their flocks of sheep and goats; fish and trade by sea. There is, in fact, a remarkable correspondence between the distribution of Greek colonies and that of Mediterranean climate, and in Greece itself Greek civilization gradually weakened on the margins of this climatic province. On the other hand, although Mediterranean modes of life, without much modification, could be followed on the coasts of Portugal, Greek colonists did not settle so far westwards, and it is reasonable to conclude that they were reluctant to enter the tidal waters which lay beyond the Strait of Gibraltar.

Finally, there is one other aspect of history which stands closely related to geography. In the present-day countryside, as on the large-scale topographic maps which are now available in many countries, features alike of historical and geographical interest are everywhere interrelated. The conception of the countryside or the large-scale map as a "palimpsest" or document, which, rightly deciphered by the expert, yields an abundant return alike to the geographer seeking to explain the present patterns, and to the historian interested in the surviving testimony of the past, illustrates concretely how mutually interdependent these two cognate studies can be. Armed with maps, the geographer, almost of necessity, must work "in the field" in furtherance of his studies; in the open air also the historian can equally find grist to his mill. If the latter is studying, for example, prehistoric or

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Roman routes, hilltop camps of the Early Iron Age, or dykes and ramparts of the Dark Ages such as the remarkable Offa's Dyke, mediæval abbeys or sheep-walks, river navigation, and so on, he may add both realism and precision to his narrative by direct observation "in the field." Of Grant Allen, whose book, *Town and Country in England*, showed, a generation ago, a shrewd appreciation of the contemporary countryside as an historical palimpsest, it was written : ¹

"It was a pleasant thing to go a walk with him. The country was to him a living being, developing under his eyes, and the history of its past was to be discovered from the conditions of the present."

And we may add that, in so far as man's achievement in modifying the face of the land forms a legitimate part of history, this particular history can be understood only if it is set against the relatively unchanging physical background.

The geography behind history can no longer be conceived as the hidden hand which directs human history, except perhaps during man's initial and prolonged phase of Old Stone Age culture. But in the course of cultural history in the broad sense, of economic and social history, and of political, military, and naval history, above all, *genius loci* plays a continual part. The geographical way of thinking in terms of distinctive regions with their limited opportunities to man, and in terms of distributions in space, provides an auxiliary approach to these branches of history. Although we may well believe that, in the past, peoples understood only imperfectly the world around them, and fashioned their material culture by resort to trial and error; although, too, their will and ability to adapt their world or to adjust themselves to it were continually changing: it is of obvious importance that in any

¹ Preface, by F. York Powell, to *Town and Country in England* (1901).

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reconstruction of the past this physical world should be examined with the same care that is lavished on literary sources. This geographical study involves the scrutiny of many maps, plans, and charts, and the use of much written material. It involves, too, wherever practicable, investigation "in the field." There are times, therefore, when the student of history should righteously forsake the library desk and, map in hand, stride forth into the world about him, the ins and outs of which may sometimes contain clearer clues to the past than do the musty manuscripts and the official records from which he draws the material, if not the inspiration, for his epic tale.

CHAPTER II

GEOGRAPHICAL POSITION

"Where is Africa?"

NOEL COWARD, *Cavalcade*.

"WHERE is Africa?" inquired the servant girl in *Cavalcade* of the hero returned from the Boer War, and it may be recalled that she received an inadequate answer. At first sight the question seems easily solvable with the aid of an atlas or, better still, a globe. But can questions about position be answered merely in terms of latitude and longitude, these convenient devices, useful alike to cartographers and to navigators, which impose a frame of reference on maps of the earth's surface? Certainly we may well believe that the disposition of the lands and the seas remained virtually stable during the minute period of human history. Wegener's brilliant hypothesis of "continental drift," which explains the present arrangement of the continents as the result of their disruption and movement away from an original unitary land area, need not concern us here, since it relates, not to human history, but to the more ample phases of geological time. Still less need we concern ourselves with the ever-changing map of subsequent geological periods. Throughout historical times the positional characteristics of any Place are of some importance, since, together with other geographical attributes, they had some bearing on its history. Reflection will suggest that position is not merely an absolute concept, which can be defined mathematically, but also a relative concept, for men

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have always lived in a changing world. The position of a Place, therefore, is both a variable and a stable factor of geography: only in part is it a natural fact—something which is given and changeless. In so far as it is variable in relation to a changing world, position must be correctly assessed for different periods of history. We cannot safely assume for the past the positional value which a Place to-day enjoys—not unless

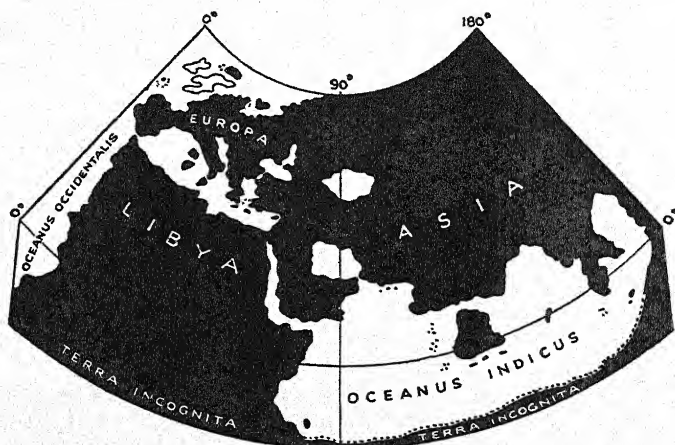


FIG. 2.—The World *c.* A.D. 150, according to Ptolemy.
(The British Isles are left white.)

we would commit one of the more heinous of historical misdemeanours.

Position, then, if on the one hand absolute, is on the other relative, but relative to what? Above all, to what the Greeks called the *oikumene*—that is, the known and habitable world—which was by no means coincident historically with the true extent of the earth's surface. Compare, for example, the world as it was known in the heyday of the Roman Empire with that known to cosmographers after the great age of

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geographical discovery (Figs. 2 and 3). Since the time of Ortelius' map the bounds of the known world have been extended still farther: the salient features of the land and water areas of the earth are now almost fully known, for at least the main outlines of the Polar regions have been drawn. The position of a Place at any time is affected, too, by the extent to which the known lands were populous or unsettled, civilized or barbarous. Finally, the degree to which a given position is marginal or central depends in part on its

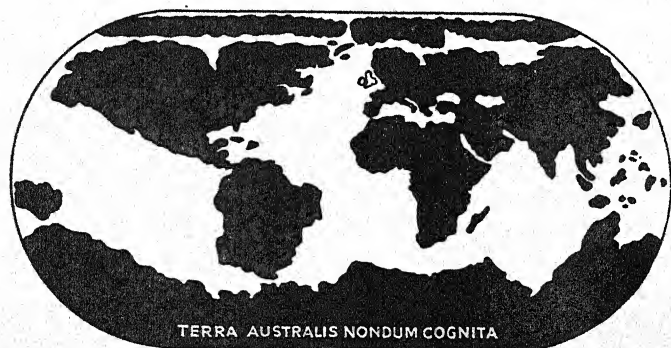


FIG. 3.—The World in A.D. 1570, according to Ortelius.
(The British Isles are left white.)

accessibility, and this in turn changes from age to age as the means of communication and transport change.

Note, for example, how the accessibility of New York changed during the last hundred and forty years (Fig. 4).

We may say that inherent in any Place were certain positional possibilities which were utilized in varying degrees at different times. Our own islands afford an excellent illustration of this idea. Their position has often been extolled as a permanent and valuable asset, and used to explain certain facets of their history. That

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position, however, has certainly not been stable throughout history. The insularity of Britain, for example, is not as age-long as its human history: during many millennia—which correspond with the Palæolithic, or Old Stone, Age and its successor the Mesolithic period—Britain remained firmly welded to the continent (Fig. 5). To-day, it is true, the British Isles enjoy a distinctly advantageous position. Close to, yet detached from,

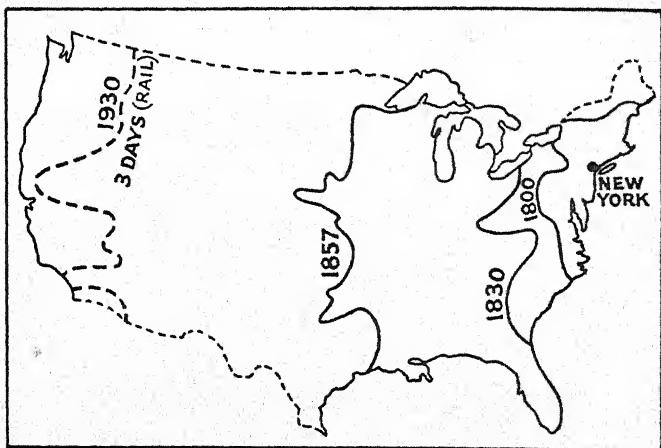


FIG. 4.—Areas reached by a week's travel from New York in 1800, 1830, and 1857, and by three days' travel in 1930.

the continent with which they are related by geological structure, they occupy that position in Europe which lies most advanced towards North America. The way stood open to them, once the sea routes had been explored and secured, not only to the New World, South Africa, and the Far East, but also to the more local semi-enclosed seas—the North Sea, the Baltic, and the Mediterranean. No land area lay immediately westwards of the British Isles athwart the direct sea-ways to North America, but other states of western

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Europe, notably Portugal, Spain, France, and Holland, alike enjoyed a western frontage to the North Atlantic and played their parts in the commerce and settlement of the Americas. For the oceanic route to the Cape of



FIG. 5.—Britain attached to the Continent, *c.* 7500 B.C.

(After L. D. Stamp.)

Good Hope and the Far East (Fig. 6), both Portugal and Spain were better placed than the British Isles, an advantage which the former did not fail to exploit.

It may be remarked that the extent to which position alone is a significant factor in history presents a nice question. In some respects, for example, the position

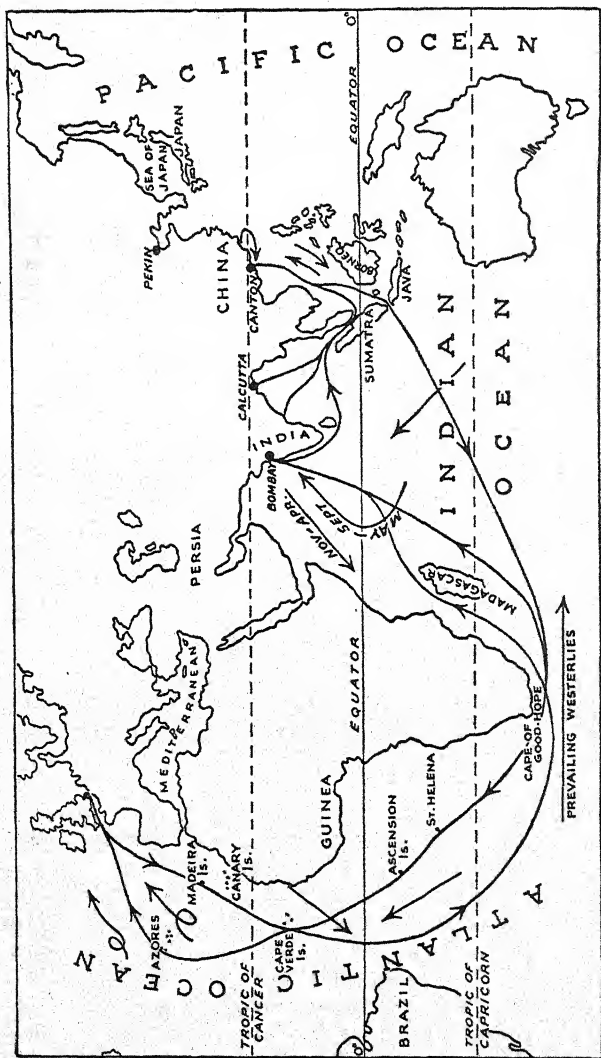


FIG. 6.—Sailing routes between Britain and the Far East.

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of Ireland was superior to that of the greater, more productive, and more populous island, yet it was the latter, and more particularly England, which took advantage of the opportunities offered by the new location which the British Isles assumed subsequently to the geographical discoveries of the late 15th and early 16th centuries. The striking feature of that new location was that the British Isles found themselves at the centre of the known and inhabited land hemisphere¹ as well as at the gateway into Europe from the New World. As a result, Britain ceased to be just:

“ . . . this paltry little isle
With acres few and weather vile.”

In contrast, the position of the British Isles in the early stages of their history was much less enviable. For many thousands of years these islands stood remote from, and marginal to, the most highly developed civilizations of the time. They formed a veritable cul-de-sac at the western end of the Eurasian land mass, as did the Japanese islands at its eastern end. Two local sea routes, it is true, passed through their home waters. The narrow seas between Britain and Ireland afforded an alternative route from south-west Europe to Scandinavia and Iceland. Similarly, the English Channel was a thoroughfare for ships sailing between the Mediterranean and the North or Baltic seas. But essentially, our islands stood at a terminus of routes. To the west lay the trackless Atlantic: even after the Vikings had crossed it for the first time in the 10th century, it remained a barrier frontier until the time of Columbus. To the north, also, beyond Iceland and western Scandinavia, seas which were frozen over except in summer formed a blind alley (Fig. 7). From the 11th century onwards southern Greenland alone,

¹ On this point, see Sir H. J. Mackinder, *Britain and the British Seas* (1902), chap. ii.

THE GEOGRAPHY BEHIND HISTORY

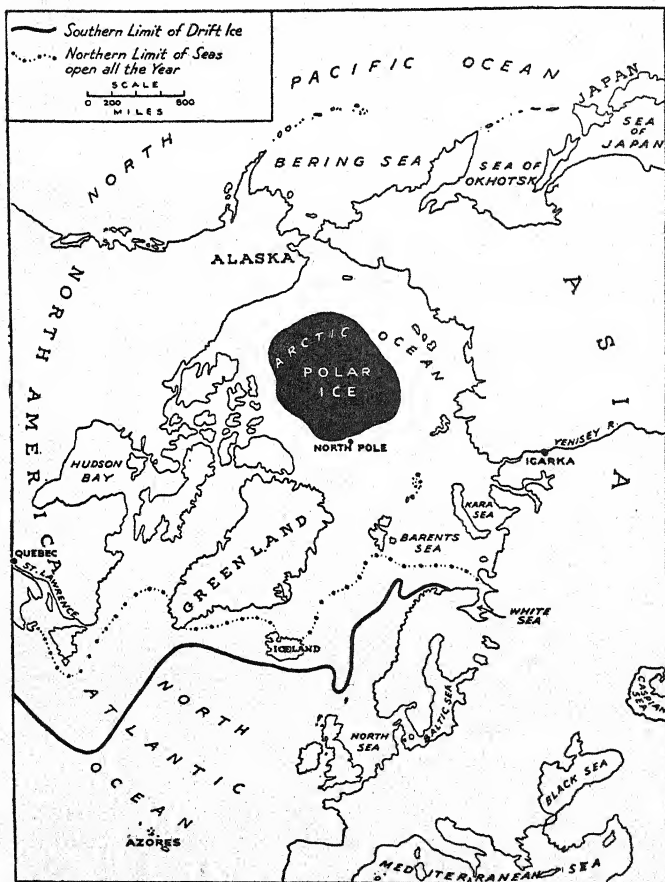


FIG. 7.—The northern front of the Old and New Worlds.

which was colonized by the Danes, became a distant outpost of European civilization on the margin of the Arctic Ocean. There were no practicable routes north-eastwards or north-westwards to India and China and

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their fabled wealth, such as cosmographers conceived and explorers sought in the 16th century, and even the relatively short passage to the White Sea was opened up only in the reign of Queen Elizabeth.

If we throw back our minds as far as the third millennium before Christ, when civilized ways of life were slowly spreading into the Mediterranean peninsulas and into central Europe, we find that the British Isles, together with western France and northern

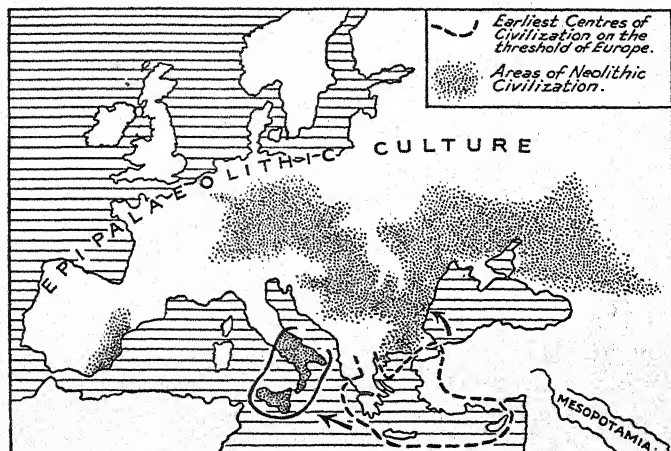


FIG. 8.—Areas of culture in Europe, c. 2500–2000 B.C.

Europe, then remained among the most backward and unprogressive areas of the Old World (Fig. 8). Successive cultures of the Neolithic, Bronze, and Early Iron ages reached Britain late, and in somewhat enfeebled forms. Ireland, it is true, putting to good use its resources of gold and copper, nurtured an original and flourishing civilization during the early Bronze Age which for a time reversed the east-west flow of cultural currents. This fact does not undermine the generalization that the British Isles, despite their

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cultural individualities, were actually outliers of cultures which had matured on the continent. In so far as European civilization depended during the Neolithic and Bronze ages on diffusion of peoples and ideas from some of the earliest centres of civilization¹—namely Egypt, Mesopotamia, Crete, and the Ægean world—clearly the British Isles occupied a remote and unfavourable position. Not only did they stand far off in actual mileage, but, given the means of communication of the time, they were relatively inaccessible. England stood no farther from Egypt as the crow flies than did Almeria in south-eastern Spain, yet Neolithic civilization reached the latter some five hundred years or so earlier than it reached England. It may have been diffused into Almeria by way of the Mediterranean or the open steppe lands of north Africa; it reached Britain via continental Europe, where—owing to extensive forests, marshes, and mountain obstacles—penetration was less easy and less rapid.

Nor, during the Roman period, when the Mediterranean Sea formed the axis of Græco-Roman civilization, was the position of the British Isles other than ex-centric (Fig. 2). The centre of gravity of the Roman Empire, in respect of population and commerce, lay in Italy itself and in the eastern basin of the inland sea—in Egypt, Syria, and the coastlands of Asia Minor. Only the southern part of Britain, south of the Central Valley of Scotland, was deemed worth conquering by the Roman emperors, and the conquest of Ireland, lightly contemplated by the Roman general Agricola,² was never undertaken. It was rather for strategical reasons than for its intrinsic wealth and importance that Britain was occupied, since some of the peoples of southern England had supported their kinsfolk in Gaul against Rome. The two walls which

¹ See below, Chapter VIII.

² He thought that Ireland could be subdued with the aid of seven or eight thousand troops!

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were built by the Roman legions across the "waists" of England and Scotland were defences on the north-west frontier of the Roman Empire, beyond which less

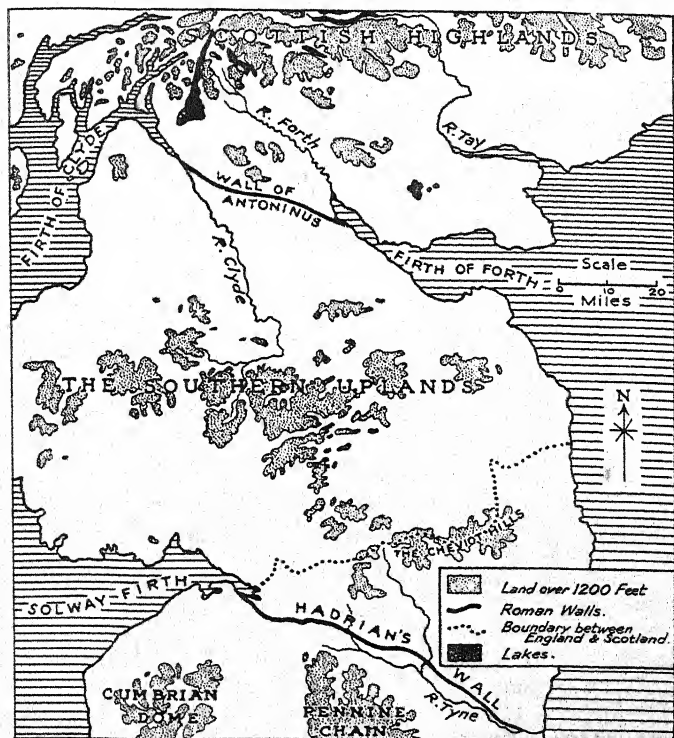


FIG. 9.—The Roman walls and the Anglo-Scottish boundary.

civilized ways of life persisted (Fig. 9). To a Roman legionary, service there on guard against "the Picts, the Caledonians and other Scots," must have been comparable with that of British soldiers to-day on the North-West frontier of India—virtual exile in the

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wilderness. Similarly, in the days when its glory had long passed away, Greece seemed to officials sent there from Constantinople "an utter hole."

It is not without interest that the position of Ireland, if we can believe Tacitus, was assessed by the Romans more highly than that of Britain. "Ireland," he wrote, "lying in the mid-way between Spain and Britain, and likewise very convenient for the Gallic Sea would, if conquered, unite the strongest parts of the Empire by its great advantages; . . . in a higher degree, the approaches and harbours of Ireland are known by merchants." Whatever its inaccuracies, this statement is geographically suggestive. Eastern, if not southern, Britain faced the less developed northern part of Gaul and the "barbarian" or non-Roman world which lay beyond the Rhine. Southern and eastern Ireland was reached, with the aid of the prevailing sou'-westers, by coastwise sailings along the coasts of Portugal, Spain, and France, or more directly by short sea passages from Brittany via Cornwall. This route, or at least parts of it, seems, on good archaeological evidence, to have been followed for some two thousand years or more before the Roman Empire (Fig. 21).

Britain long remained a marginal fragment of Europe, from which it received peoples, languages, its religion, and some at least of its political institutions. The insularity of Britain and Ireland in no sense spelt isolation; nor did it condition political unification. At different times Britain became, not so much aloof and insular, as part of wider political units, the parts of which were held together by use of the sea-ways across either the North Sea or the English Channel (Figs. 10 and 11). Nor did the insularity of Britain evoke at once a seafaring population. It is something of an exaggeration to suggest, as some German writers do, that prior to the late 16th century England remained a land of peasants who lived aloof from the sea, and that

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its foreign trade was entirely in the hands of aliens, notably the Hansards and the Venetians. Yet this view contains a large element of truth. The first

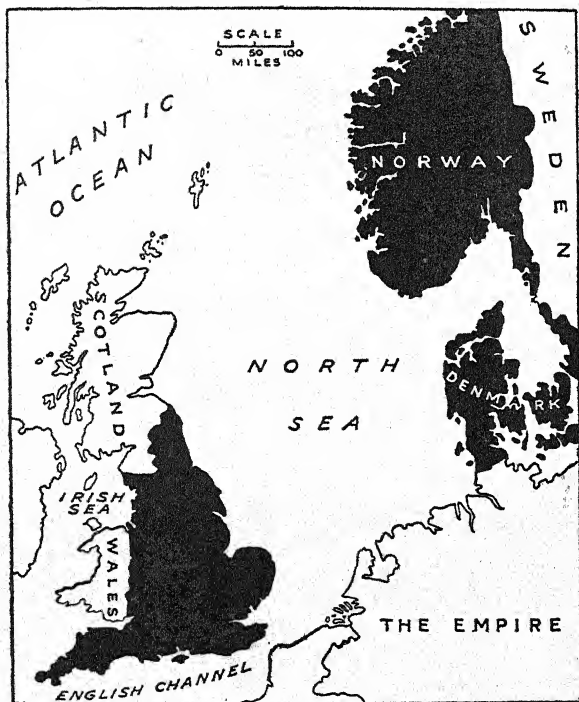


FIG. 10.—The kingdom of Canute, A.D. 1014-1035.

(Note its relation to the semi-enclosed North Sea.)

seamen, in historical times at least, who seemed at home in the local waters of the North Sea, the Channel, and the Irish Sea, were not Britishers, but peoples from continental shores—in turn Anglo-Saxons, Frisians, and Vikings. But during part at least of the later

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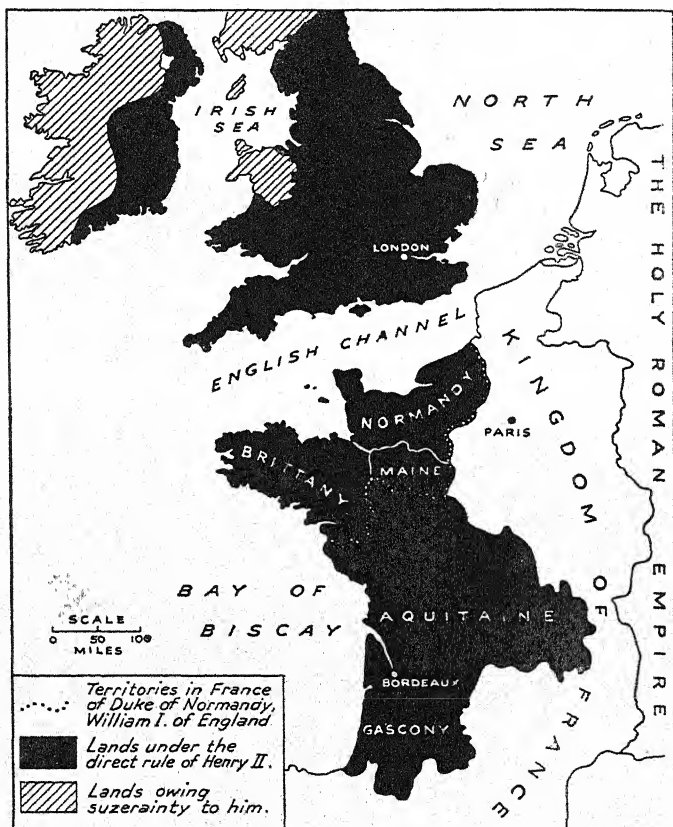


FIG. 11.—The kingdom of Henry II. at its maximum extent.

(Note its relation to the narrow waters of the Irish Sea and the English Channel.)

Middle Ages, English kings held mastery of the Channel, and during the 15th century, if not earlier, English fishermen were sailing from Bristol to Iceland, and English ships were trading with Ireland, the Iberian penin-

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sula, France, and the Baltic. It is true, however, that English enterprise lagged behind that of Portugal and Spain during the great age of discovery, although it eventually played some part. But it was not until the defeat of the Armada in 1588 that England became a strong sea-state, ready to exploit the possibilities presented by the new oceanic routes.

Let us turn to an illustration of the importance of



FIG. 12.—The position of Crete, Troy, and the Cyclades Islands.

(The circle shown has its centre in central Crete and a radius of about 500 miles.)

geographical position at the dawn of history (Fig. 12). No one can question the fact that Crete, the Cyclades Islands, and Troy were the areas where civilization first appeared on the threshold of Europe. If, as some hold, this civilization—which included the practice of cultivation, pastoral farming, writing, city life, metallurgy, architecture, and other arts—arose spontaneously in Crete, it is certainly difficult to assign much importance

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to geographical factors. As a recent exponent of this view, A. J. Toynbee, wrote: "Crete, like the rest of the Ægean world is bare, barren, rocky, mountainous, and broken into fragments by the estranging sea." He is able to explain the precocious civilization of the Ægean lands only as the remarkable human response to physical conditions of unusual difficulty. How far this interpretation gives due weight to the geographical facts we need not discuss here, although we should note that Crete is the largest and most fruitful of the many islands of the Ægean Sea. But if we adopt the more generally accepted view, which has behind it the authority of Sir Arthur Evans, and believe that Crete received its first quickening impulse from Egypt, we must be struck at once by the relevance of the positional factor. For the civilization which had flourished in Egypt and Mesopotamia¹ earlier than that of Crete was certainly not without effects on neighbouring lands. There are hints of early trade relations between Egypt and Syria, and between Egypt and the island of Naxos, which is a member of the Cyclades group. So also Mesopotamia had relations with Syria and with Asia Minor, near the north-western shores of which stood Pergamum (Troy). When we remember, too, that Crete, a detached fragment of Europe, stands nearer to Egypt than any other part of Europe, and that the Cyclades, together with other island groups, form stepping-stones between Asia Minor and Crete, it is tempting to conclude that the geographical position of Crete and the Cyclades Islands was a significant factor in the genesis and development of Ægean civilization.

The fortunes of Crete between the years 3000 and 1900 B.C. indicate clearly how its relative position changed. If at first it stood marginally to the civilized lands of Egypt, Syria, and Asia Minor, it became later, as a result of its sea power and commerce, the centre of the eastern basin of the Mediterranean (Fig. 12).

¹ See below, Chapter VIII.

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Its maritime relations extended westwards to Sicily and southern Italy, eastwards to Pergamum, Cyprus, and Syria, and south-eastwards to Egypt. With the spread of civilization from Crete to the Greek mainland, Crete lost and Greece won this central position in the east Mediterranean. Greece, in turn, abandoned this position only later when Rome secured the central position in the Mediterranean for Italy, which seemed to occupy this by nature. But prior to the establishment of the Roman Empire, the position of Italy and Sicily was marginal rather than central in relation to the most civilized lands of that time.

Sicily, too, affords a striking illustration of how changes in relative position occur and affect history¹: at first marginal to the civilized Ægean lands, it became and long remained central to the highly developed civilization of the Mediterranean world, until the inland sea itself lost its central position with the opening up of the oceanic routes to the Americas and the Far East.

In conclusion, two further instances may be given to show the historical interest which attaches to the conception of geographical position. Why was it that the southern Low Countries, which we may equate with modern Belgium, were largely lacking in towns and relatively backward under the Roman Empire, yet became later, in the last centuries of the Middle Ages, the most populous, urbanized, and industrialized part of Europe? Its position relative to the known world did not change between these two periods. The southern Low Countries fronted the English Channel and lay close both to Britain and the Baltic lands. At the earlier period, however, the southern Low Countries stood on the margins of the Roman Empire, the heartland of which lay in the Mediterranean lands, and beyond the Rhine stretched the relatively backward non-Roman or "barbarian" world. At the later

¹ See, on Sicily, Gordon East, *An Historical Geography of Europe*, chap. xiv.

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period the Baltic lands had been colonized and civilized chiefly by peoples from Gaul, and many seaports had been founded around the shores of the Baltic. Britain, too, had become a more populous and productive land. Moreover, developments in seamanship brought the Low Countries into direct relation, by way of the tidal sea, with flourishing Italian cities, notably Venice and Genoa. Many other considerations, it is true, are involved in any complete answer to our question: the fact that the Franks, who built up a great continental empire, aloof from the Mediterranean, had their geographical base astride the lower Rhine, is certainly a relevant factor. But it is clear that the relative position and accessibility of the Low Countries had improved since Roman times, and these positional advantages for industry and trade, formerly latent, could therefore be exploited.¹

Finally, we may note how the origin of a great French city, Lyons, owed something to changes in relative position. This town, deliberately chosen by the Romans as the capital and route centre of Gaul, did not exist as a town in the Celtic Gaul which the Romans conquered. This is surprising for two reasons. First, because many of the cities of Roman Gaul—for example, Marseilles, Paris, Orleans, and Bourges—already existed prior to the Roman conquest, if only in somewhat rudimentary forms. Second, because the site of Lyons, at the junction of what are virtually three navigable rivers—the upper Rhône, the lower Rhône, and the Saône—seems almost predestined for a town and route centre. Not only does it stand at the convergence of the three waterways, each with its distinct conditions of navigation, but it commands landward passage along the Rhône and Saône valleys, and routes which lead eastwards to Italy by way of passes across the western Alps.

The absence of Lyons among the towns of pre-

¹ For a full account, see Gordon East, *op. cit.*, pp. 330-39.

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Roman Gaul is explained by its relative position at that time. It appears that the river Saône formed a boundary between two Celtic peoples, the Ædui and the Allobroges, and since these peoples were frequently at war, the site which Lyons later occupied was scarcely suitable for the rise of a trading town. A frontier of friction is not the best milieu within which a civic society, dependent on wide regional relationships, can rise and flourish.

CHAPTER III

CLIMATE AND HISTORY

"The empire of climate is the first of all the empires."
MONTESQUIEU, *L'Esprit des Loix*.

A CONSIDERABLE literature, in no small degree controversial in character, centres around the problem of past climates, and advocates are not lacking who argue the crucial importance of climatic changes as a partial explanation of the location of the first civilizations, the migrations of peoples, and even the rise and fall of empires. "A favourable climate," wrote Ellsworth Huntington, "is an essential condition of high civilization," and another expert in this field, C. E. P. Brooks, asserted: "The districts where civilization began probably had at that time the most stimulating climate in the northern hemisphere." In contrast to these views, the historian A. J. Toynbee maintains that "the greater the ease of the environment, the weaker the stimulus towards civilization." The bearing of these views on the genesis of civilization in Egypt, Mesopotamia, and north-west India, we shall examine in a later chapter.¹ Here we may note that the way in which climate directly affects man and his activities to-day raises a question to which no completely satisfactory answer can be given. That climate varies regionally, not only horizontally but also vertically, is a familiar fact, and it is a prime concern of the geographer to show not only the broad types of climate which occur from Place to Place, but also the varieties of

¹ See below, Chapter VIII.

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local climate within a given climatic region at different altitudes, in different aspects, and so forth. How far can we claim, following Greek philosophers and Montesquieu, that climate has direct effects on man's physical, mental, and moral make-up? An able exponent of such direct influences of climate on man, and thus on the activities which fill the chronicles of his history, argued ¹ that certain parts of the world enjoy to-day a climate which stimulates man to a maximum physical and mental effort. A certain seasonal temperature range, relative humidity, and day to day changes of weather are the factors which combine to produce this so-called "ideal" climate, which is found to be characteristic of western Europe and a great part, especially the north-eastern part, of the United States.

Acceptance of this view raises serious difficulties, even when allowance is made for the deadening effect on human effort of prolonged periods of excessive cold or of excessive heat, especially when this is coupled with a high degree of humidity. If it is true that the ideal climate occurs in western Europe and in North America, two major historical difficulties confront us. How was it that, under climatic conditions which are believed to have been broadly analogous to those of the present, European folk remained during the period between 5000 and 3000 B.C. amongst the most backward and sluggish of contemporary peoples? How was it, too, that when Europeans reached North, as distinct from Central, America, they found there a population of Indians who lived still at the hunting stage, did not practise cultivation, were ignorant of iron, and did not possess any beast of burden or any domesticated animal except the dog? It would be rash to deny that climate acts directly and potently on man; but it would be no less rash to pretend that in the present state of our knowledge many, if any, dependable generaliza-

¹ Ellsworth Huntington, *Civilization and Climate*, 2nd ed., 1922.
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tions can be made on this subject—which raises intricate problems for future research.

We can speak with more assurance about the indirect effects of climate on man. Climate affects man indirectly through its influence on vegetation, and thus through its influence on the nature and economic possibilities of his habitat. It stands, together with soil and relief, as one of the factors, and usually the chief, which condition in any Place its "*modes de vie*." By this convenient phrase, which means "the ways in which a livelihood is got," French geographers indicate what is the most significant link between man and his physical environment, since, according to the physical equipment of any Place, so will be suggested to man, within more or less rigid limits, particular means of livelihood, particular forms of economic activity. Consider two simple cases. Wide open stretches of the Afrasian steppe-desert belt—which are too arid for cultivation yet are covered sporadically by certain pasture grasses and contain scattered water holes or oases—suggest, and almost inevitably impose, the nomad's way of life. Or, again, consider an area in temperate latitudes—for example, in the Mediterranean region—where lowland pastures, available only in the winter season, are juxtaposed to upland pastures available only during the hot season. In such an area nature suggested the idea of seasonal movement of stock, the historic practice known as transhumance.¹

Climate, to repeat, is the chief among those physical agents which define within what limits and in what ways man can seek his livelihood. It is so, because all plants can grow only within certain climatic limits. Some, like the olive, can survive summer drought; wheat requires a certain growing period free from frosts, which, by a careful breeding of plants, man has reduced to a minimum of about ninety days; rice and citrus fruits require much moisture as well as heat;

¹ See below, Chapter VII., pp. 139-40.

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and even grass, the food for stock, cannot survive extreme cold or summer drought. We have already noted that, although he cannot change climate, man can in many ways evade its rigorous control—by irrigation, drainage works, wind screens, and by plant breeding. As an essential aid, though also as a challenge, climate has always conditioned human activity. The variations of the seasons largely determined the farmer's calendar, and the local conditions of temperature and rainfall set limits to the food and vegetable raw materials which could be produced. The distribution of natural vegetation, too, corresponded broadly with climatic belts, and forests in particular provided in early times forbidding zones which confined man's movements.

We have indicated above that climatic changes throughout history have been postulated, and herein lies the crux of the subject for our present purpose. Should climate be grouped among the variable factors of geography, and is it therefore unsafe to assume for past periods the climates which at present obtain? On what evidence does the belief in climatic change rest, and what is the nature of the changes which occurred? Can we, having discovered them, correlate phases of climate with phases of history and pre-history? Finally, are the ascertained changes of climate significant geographically, or only so to the climatologist? In other words, were the changes of such a scale as to have produced important modifications of the vegetation and the habitability of particular Places, and thus to have prompted changes in the human response?

That there is nothing intrinsically improbable about the notion of climatic changes during history is suggested by two facts. First, many climatic changes, culminating in those of the last Ice Age, are known to have occurred during geological times. Second, in recent times, as meteorological records bear witness, a

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number of cyclical fluctuations of climate have taken place. The whole period of man's presence on the earth, which is estimated at 50,000 years, coincides with the later phases of the last Ice Age. Geologists recognize four main stages in the Quaternary (or last)

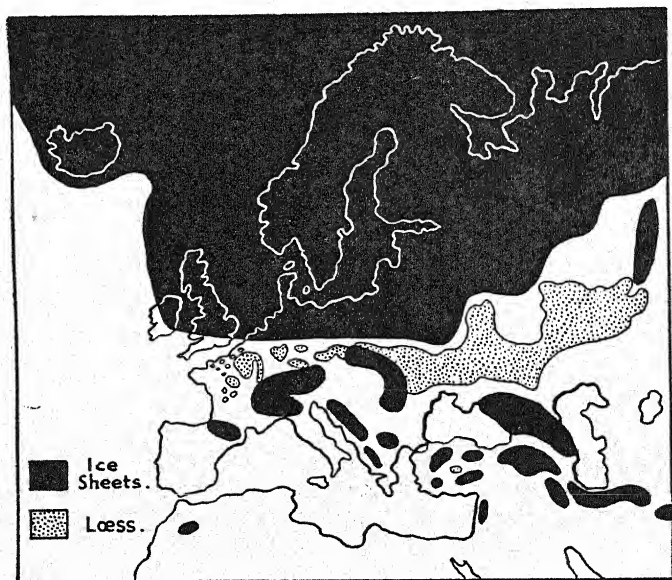


FIG. 13.—Europe in the Ice Age.

(The loess of the Danubian Basin is not shown ; see below, Fig. 20.)

glaciation in Europe and North America. After each glacial onset, when glaciers extended southwards from Scandinavia into the North European Plain (see Fig. 13), followed an interglacial period of great length, when climate improved, becoming even warmer than to-day, and thus provided conditions suitable to human existence. The last stage of the Ice Age, the Würm phase, began about 40,000 B.C. and lasted in Sweden

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until about 6500 B.C., but small re-advances of the glaciers occurred in the sixth millennium (*i.e.* 6000–5000 B.C.). The earliest evidences of human species, which were other than the species *Homo sapiens*, the sole survivor to-day, may be dated at least as early as the interglacial period which preceded the Würm phase. The more recent periods of history which succeeded the disappearance of the Würm glaciers correspond with yet another interglacial period, in which we now live. How many millennia lie before us until the next glacial period sets in we cannot tell, but the probability of its eventual onset serves to remind us that we live in a world of changing climate.

During the millennia between 18,000 and 8000 B.C., when the ice was disappearing from the North European Plain, the arrangement of climatic belts in Europe was very different from that of to-day. The area of high pressure which now tends to lie over the Arctic Ocean then extended far south. As a result, the Atlantic rainstorms were deflected southwards from their present course, so that they passed eastwards across the Mediterranean and western Asia. These rainstorms were effective throughout at least the northern part of the present Afrasian steppe-desert belt (Figs. 14 and 15), as well as farther east—in Mesopotamia, Baluchistan, and the lower Indus valley.¹ This now arid belt then enjoyed, therefore, a moderate rainfall well distributed throughout the year; as a result, it became an extensive grassland or rather savanna country, comparable with that which lies in Africa to-day on the southern margin of the deserts. Nor is there ground for scepticism about these former conditions of climate and vegetation, since archæological evidence corroborates the climatologist's deductions. From discoveries of cave drawings and of the bones of animals, the archæologist has shown that the Afrasian steppe was formerly the habitat of many animal species which are found to-day

¹ See below, Chapter VIII., p. 157.

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not in arid areas but in grasslands, and that a number of tree species formerly existed there which would be sought in vain to-day under the ruling climatic conditions.¹ Nor is there reasonable doubt that these conclusions of the archaeologist relate to part, at least, of the long period when the ice was making its final retreat.

The bearing of these geographical conditions on the

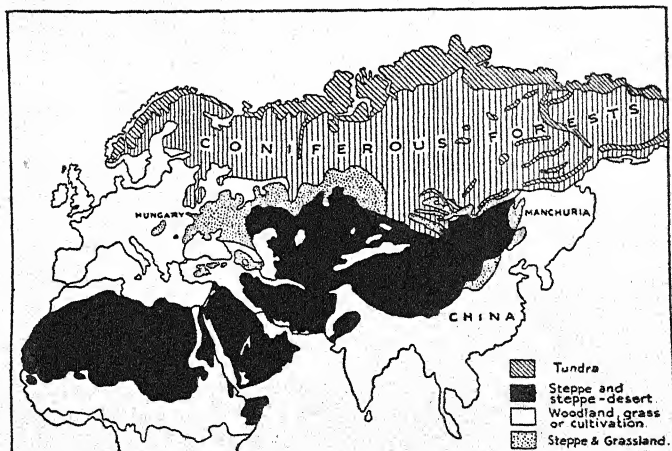


FIG. 14.—A generalized vegetation map of the Old World.
(Note the location of the steppe-desert belt, and how it separates Europe from central Africa and the monsoon lands of south-eastern Asia.)

prehistory of the Afrasian steppe-desert belt can be briefly shown. During the wet period described above, groups of people, at the Palæolithic (or Old Stone Age) stage of culture, lived in the grasslands by hunting. The alluvial valleys of the Nile, the Euphrates, the Tigris, and the Indus rivers, which became later the homes of the first civilizations, remained during this period unoccupied by man. Overgrown by dense jungle, water-logged, and marshy, they were the resorts

¹ See below, Chapter VIII., pp. 166-67.

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of wild beasts—difficult to penetrate, and forbidding to hunting folk—at home on the grasslands where movement was easy.

When the ice had withdrawn from southern and central Sweden, climate underwent change. The climatic belts shifted north to approximately their present positions. This was the state of things about

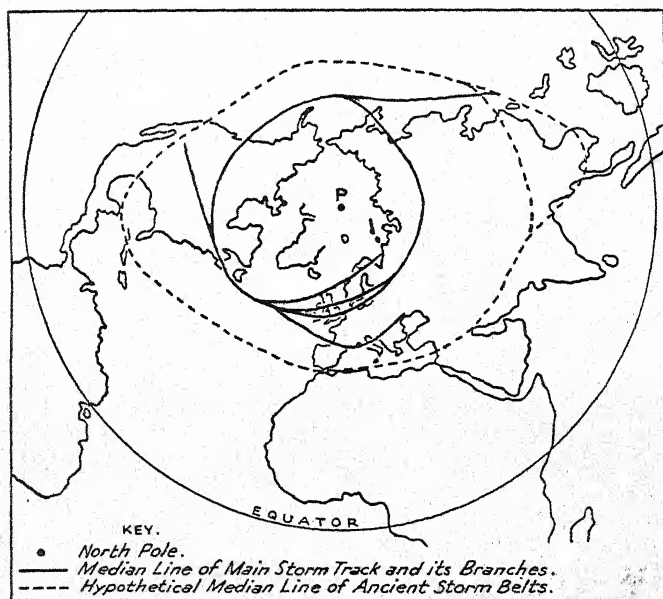


FIG. 15.—Storm tracks, past and present.
(After Huntington, modified.)

6000 B.C. What were in turn the geographical and historical effects of this great change? First, there were striking changes in the vegetation cover: over wide areas of continental Europe, including the North European Plain and the southern half of Scandinavia

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trees, both coniferous and deciduous, penetrated from south-eastern Europe and colonized extensively. The amelioration of climate had no apparent effect on the changeless culture of European peoples; during the three succeeding millennia they remained at essentially the same Palæolithic cultural level, seeking a livelihood by hunting, fishing, and food-gathering, and ignorant alike of agriculture, of pottery, of metallurgy, of civilized arts, and of all domesticated animals except the dog.

The northward shift of the climatic belts deprived the Afrasian grasslands of the Atlantic rainstorms. They suffered, as a consequence, gradual desiccation, so that the environment was transformed and a stern challenge was thrown down to its occupants. Instead of plentiful pasture, interspersed with trees, appeared dry wastes with intermittent, poor, xerophytic grasses, and occasional oases. The animal denizens of the grasslands met the new conditions by migrating widely. From North Africa, for example, they moved southwards, and northwards into Europe. The effects on man were no less striking, and it may well be that climatic change explains the momentous change from the primitive food-collecting economy of hunting groups to the food-producing economy of the first civilized folk. If we may summarize briefly the now orthodox view,¹ we may say that the peoples of the steppe-desert belt were offered a threefold choice. They could emigrate in search of more familiar and congenial environments in the wake of the wild animals on which they depended for their food. They could stay where they were, in which case those who managed to survive the hard conditions would have to modify their way of life. Or lastly, they could think out a new kind of livelihood by means of cultivation and animal husbandry, in which case they could explore the possibilities of the

¹ See V. Gordon Childe, *The Most Ancient East* (1929), chap. ii., and A. J. Toynbee, *A Study of History*, vol. i. (1934), pp. 302-5.

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formerly neglected riverine lands. Actually, it appears that all three courses were adopted by different groups. It must suffice to note here two remarkable results. One was that, alike on the margins of the valleys of the Nile, Euphrates, and Tigris, a Neolithic culture of villagers—who engaged in agriculture, possessed domesticated animals, made pottery, and showed skill in other crafts—appeared for the first time about the year 5000 B.C.¹ The other was the emergence of “nomadism” as a new way of living within the steppe-desert belt. Nomadism means literally “cattle-driving,” or the movement of flocks and herds from place to place in search of the scanty available pasture.

We may regard it as certain, therefore, that measurable changes of climate have taken place within the period of human history, although the nature of the alleged changes in particular areas and at particular times has been much disputed. Geographers, archaeologists, and historians, no less than climatologists, have joined issue on these problems of common interest, and clearly many difficulties arise in the attempt to evaluate and reconcile fragmentary evidence derived from different specialist studies. Some experts have been at great pains, not without some measure of success, to show that climate remained apparently stable since early historical times, or, arguing more cautiously, they sought merely to prove that the climate at a particular time was essentially that of to-day. For, we may note in passing, proof of this latter contention does not preclude fluctuations of climate between the selected date and the present. By a careful study of the climatic requirements of the date palm and of its distribution in Biblical and present times, J. W. Gregory showed that the mean temperature of Palestine was approximately the same at both periods, but his argument did not exclude the possibility of changes in rainfall. Similarly, the question whether

¹ See below, Chapter VIII.

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or not the Sahara and North Africa were wetter in Roman times than to-day has been much debated. Huntington argued that there was a distinctly wet phase, wetter than to-day, from 200 B.C. to A.D. 200, and that during the two succeeding centuries, which witnessed the decline of the Roman Empire, rainfall steadily decreased. He suggested, too, that this alleged climatic change between A.D. 200 and 400 was a contributory cause of the agrarian and social troubles in Italy, and even of the collapse of the Roman Empire itself. It must be admitted that some of the evidence on which this hypothesis rests is equivocal and unconvincing. It is not always safe to infer from the decay of cities, the abandonment of trade routes, and the disappearance of animals usually associated with moist grasslands that the rainfall of a semi-arid area has decreased. We know, for example, that elephants were numerous in North Africa in early Roman times and that they almost vanished soon after the fall of Rome. Their extinction, however, seems to have been due primarily to the Romans themselves, who used elephants in large numbers in warfare. Again, the remarkable eclipse of flourishing cities, such as Timgad in Tunisia and Palmyra in eastern Syria, both situated in areas now arid, may have resulted, in part at least, from the discontinuance of efforts necessary to discover, store, and distribute water, in which the Romans particularly excelled. On the other hand, the former conditions of rainfall in California, for which good evidence exists, may well be applicable, as Huntington argued, to the Mediterranean region, since western California to-day enjoys a climate of Mediterranean type. If this argument is valid, then the rainfall conditions of North Africa between 200 B.C. and A.D. 400 followed the course stated above. The French historian Gsell, who studied North Africa with great care, believed that either the climate had not changed at all, or that it was *slightly* wetter in Roman times

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than it is to-day. In sum, the balance of evidence favours this latter conclusion of Gsell. If this is sound, it would be rash to seek in the contemporary changes in rainfall an explanation of the economic, social, and political problems of the Roman Empire. It is not clear that the degree of desiccation between A.D. 200 and A.D. 400 was sufficient to have had marked repercussions on the economic, social, and political life of Rome.

Whilst some have tried to prove climatic stability, others have maintained that progressive desiccation has occurred in particular areas. There are many apparent grounds for this contention. Certainly, no one can doubt that some parts of the world receive to-day less rain than at some earlier phase of their history. Egypt and southern Baluchistan are certainly drier to-day than they were, for example, in the third millennium B.C.¹ Similarly, as Douglass's careful study of the sequoia trees of California indicated, the climate there is drier to-day than in the 1st century A.D., and if Huntington's argument is accepted, the same is true of the eastern Mediterranean. Further, it is arguable that Central Asia is drier to-day than it was, say, in 5000 B.C., but the evidence is very scanty and doubtful. On the other hand, it seems no less certain that some areas have become much wetter than formerly. It is difficult to believe that the remarkable Maya civilization of Yucatan in Central America could have flourished as it did during the period 100 B.C.-A.D. 350 under conditions of climate and vegetation similar to those of to-day. Maya ruins occur in many places where tropical heat, rainfall, and jungle prevail to-day and afford the least healthy and most difficult of the habitats locally available. And finally, the hypothesis of progressive desiccation fails to take account of a whole mass of diverse evidence which suggests pulsations or fluctuations of rainfall throughout historical times.

The idea that the climate of history should be con-

¹ See below, Chapter VIII., pp. 166-67.

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ceived in terms of fluctuations rather than in terms of either stability or progressive desiccation receives support not only from studies of long-period changes in geological times but also from those of short-period variations in the present. The so-called "11-year solar cycle," which has been discovered from the study of actual records of solar radiation, may be, as Huntington suggested, "the counterpart of the far larger pulsations of the remote past." Every eleven years, approximately, the radiation of the sun is affected by the appearance of a large number of "spots" on its surface. Just what modifications of climate are produced when the sun has many spots is not yet clear. Certainly, the greater part of the earth's surface becomes slightly cooler. Moreover, according to Huntington, increased storminess results, and the storm tracks in Europe and North America shift northwards and southwards of their usual courses. It is tempting to suspect, therefore, that if records were available for sufficiently long periods, sunspot cycles occurring at intervals of more than eleven years might be discoverable. And if Huntington's contentions are substantiated, it may well be that variations in the spottedness of the sun, howsoever caused, provide a partial explanation of the climatic changes in history.

It is not surprising that historical pulsations of climate have left most traces and proved most important in arid and semi-arid areas where a small variation in rainfall has disproportionate effects on vegetation and thus on animal and human life. It may be useful to indicate here briefly the kinds of evidence which survive in such areas. The former strands of inland seas and lakes, notably the Caspian and Dead seas, Lop Nor in Central Asia, Lake Moëris in Egypt, Lake Constance, and a number of lakes in California and Arizona, indicate changes in the water level, and may thus reflect climatic changes which can often be dated with some assurance. The stumps of sequoia

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trees of great age in California and Arizona have been subjected to very careful research which has produced graphs of raininess for a period extending back to two and even three thousand years, for it is a valid assumption that the annual rings of tree growth in dry regions are closely correlated with the rainfall of the few preceding years. Again, archæological and literary records show how in arid or semi-arid areas civilizations grew and decayed, how cities and trade routes were abandoned, how streams and wells dried up, and how the fauna and flora changed. Finally, there are accounts of unusual climatic conditions—of violent storms and floods and of abnormal seasons—which may indicate not merely the normal aberrations of weather from year to year, but also broad phases of distinctive climate.

It has been claimed by Pettersson and Huntington that the first half of the 14th century provides a remarkably clear instance of the culmination of a period of abnormal climate which prevailed throughout the northern hemisphere. Storms of great violence and destructiveness raged in the North and Baltic seas. The coastlands of England, Holland, Frisia, and Jutland were inundated many times, and changes were effected in the physical and human geography. The Frisian Islands, off the coast of Holland, were reshaped at this time, and the Zuider Zee then assumed its familiar form. In England, villages on the coasts of Holderness and Lincolnshire, and Ravenser Odd, a seaport hard by the Humber, were washed away by high seas. In Europe, winters were often markedly severe, whilst summers were often cool and wet. The great European rivers, including the Thames and the Po, froze over for weeks and even months at a time; they were subject, too, to exceptional floods, whilst in a few summers they almost dried up. It is believed that in Iceland glaciers extended farther during the first half of the century than they had ever done since the birth of

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Christ, and Greenland was adversely affected. Frequent failures of harvest in Norway made that country increasingly dependent on grain supplies from the North German Plain, and through their economic repercussions caused much of the political difficulties of the time. The known fact that about the year A.D. 1430 the herrings ceased to spawn in the Sound and migrated to the Kattegat may be attributed to the increasing freshness of the water in the Sound, which resulted from contemporary changes in the circulation of the oceans. The open-sea routes between Norway, Iceland, and Greenland, which were well frequented by the Vikings between the 10th and 12th centuries, became obstructed by ice, and by the 14th century had been forced along a more southerly course (Fig. 16). Nor were these abnormalities of climate restricted to Europe. In California unusually high rainfall was characteristic during the 14th century, and in Central Asia, as the high levels of Lop Nor and the Caspian Sea suggest, rainfall was high at least in the early decades of the century. In India, on the other hand, the rain-bearing south-west monsoons were so weak that the country suffered drought and, as a result, famines. In north-west India, too, the Mihran, a mighty river which had long shared with the Indus the task of draining water from the Himalayas, disappeared as an independent stream about the year A.D. 1350¹ (see Fig. 57). We may add that two possible explanations of the climatic stress of the 14th century have been advanced. Chinese sun-spot records, which are admittedly of doubtful scientific value, suggest that sunspots were increasing during the 14th century and reached a maximum about A.D. 1372. And Pettersson, by studying the changing relative positions of the sun and moon, argued that the "tide generating force" passed from minimum conditions in A.D. 530 to maximum conditions in A.D. 1434. Accord-

¹ Sir John Marshall and others, *Mohenjo-Daro and the Indus Civilization* (1931), vol. i., pp. 5-6.

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ing to this latter view, increased tidal range in the 14th century increased the circulation of the waters of the oceans and thus increased cyclonic activity.

We may conclude this review of climatic changes in history by relating very briefly the epic story of the Viking settlement of southern Greenland, which pro-

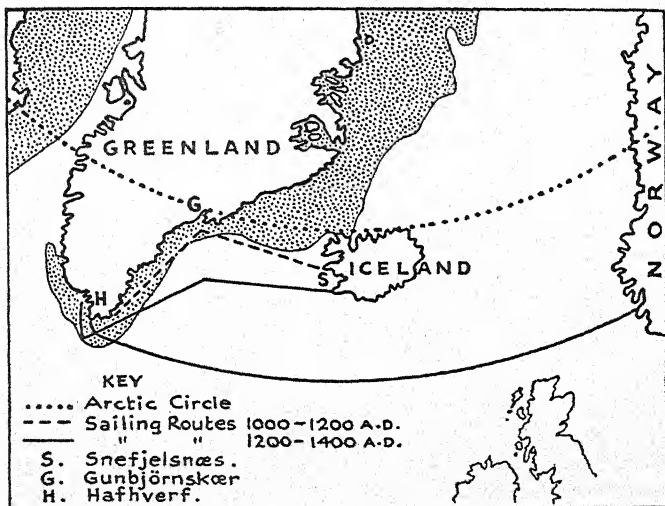


FIG. 16.—Mediæval sailing routes to Greenland.

(After O. Pettersson. The stipple indicates the usual extent of sea ice.)

vides a well-attested and irrefutable instance of adverse climatic change and its effect on history.¹ It must be admitted that even when it enjoyed a relatively genial climate in the late 10th century, southern Greenland was climatically a marginal area for civilized European life based on food-producing. The name

¹ For a full account of this pioneer settlement and its failure, see Poul Nørlund, *Viking Settlers in Greenland*, trans. W. E. Calvert (1936). On this problem of climatic change, see the reasoned discussion, *loc. cit.*, pp. 145-48.

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Greenland, which was given to the country by an outlaw from Iceland, Eric the Red, in order to attract immigrants, was something of an advertising slogan. The fact remains, however, that the numerous emigrants from Iceland who settled the coastlands of southern Greenland towards the end of the 10th century were able to support themselves mainly by the pasturing of cattle and sheep in the dales, and at the heads and along the margins of fiords where pasture was then available. The sites of old farms indicate the extent of this bold colonial effort, and the graves of settlers, in soil now frozen throughout the year, contain thick masses of plant roots which must formerly have grown under less severe temperatures than those of to-day. It seems clear that in the early stages of the settlement the edge of the Greenland glaciers stood much farther north than it does to-day, and that there were open seas between Iceland and the coasts of southern Greenland. The climate began to worsen from about A.D. 1200 onwards ; it became even more severe in the 14th century. The slow decline of the colonies was then accelerated, and in the following century they became extinct. The Eskimos, who made their livelihood by hunting seals near the edge of the ice, moved southwards during the 14th century and attacked the Viking settlements : their southerly movement indicates that the ice was spreading southwards. It is evident that the Vikings suffered from the adverse effects of increasing cold on the vegetation which undermined their pastoral farming, and also from the weakening of contacts with Iceland and Norway, with which they were politically bound. They were apparently unable to adapt themselves to the Eskimo's way of life, and despite their superior material culture could not defend themselves. The study of the skeletons of the last survivors tells a pitiable story ; the descendants of the hardy Viking pioneers were "an inactive flock of debilitated individuals, undersized and deformed."

CHAPTER IV

ROUTES

"The road is branded on the soil. It sows seeds of life—houses, hamlets, villages, and towns."

P. VIDAL DE LA BLACHE,
Principles of Human Geography (1926).

THE study of routes, whether by land, water, or air, forms an important and common interest to the geographer and the historian. For the former they exist as the means of present-day transportation and as features woven into the landscape, the explanation of which is his principal concern. For the latter they are of interest as the essential instruments by which peoples and ideas were diffused, and the activities of commerce, travel, and war were conducted. It is unnecessary to emphasize the fact that the road in its various forms—the hunters' trail, the drovers' road, the mule path, the ridgeway, and the engineered road of Roman and of modern times—has played everywhere throughout history a vital rôle, "as a sustenance without which organized society would be impossible."¹ From the standpoint of geography the routes of history raise many problems. How far, if at all, can we postulate the former existence of "natural routes," that is, ways which have been marked out by nature as practicable to man and beast? Is there sure ground for the idea that man's earliest roads were the tracks beaten out by wild animals? Should we, in contrast, conceive of routes as solely man-made features sketched

¹ Hilaire Belloc, *The Road* (1924), Preface.

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upon the soil? Finally, were the ways along which men moved broadly defined by physical geography, or did men themselves in all arbitrariness blaze their own trails?

We may reasonably believe that natural routes existed where, by reason of their physique, vegetation, and climate, particular zones of country lay open and passable. Such possibilities of easy movement were afforded in tracts which were free of dense forests, impeding marshes, and mountainous obstacles, above all in grasslands and steppes. Rivers also, notwithstanding their individual characters and physical difficulties—drifting tree trunks and ice, changes of level, currents, shoals, freezing, and shifting channels—often provided routes, and means of locomotion too, though only down-stream. Similarly, the seas afforded natural routes, when once a sufficient mastery of shipbuilding and of navigation had been acquired. Again, a snow-clad plain, as in Russia, offered innumerable routes for travel by sledge, although with the spring thaw wide water-logged areas obstructed transportation. Finally, the gaps between, and the passes through, mountainous areas presented not only lines of least resistance but often the only practicable ways, prior to the construction of tunnels and the use of aircraft.

In the fauna and flora of different geographical milieux, nature provided the materials with which man learnt to devise means of transport suited to the particular local conditions. The extensive steppe-desert belt of the Old World¹ (see Figs. 14 and 54), where pastoral farming, together with cultivation in favoured parts, prevailed early, was particularly well endowed by nature with domesticable animals, and with flat, dry, and open surfaces appropriate to the use of draught and pack animals. Natural obstacles to overland transport—dense forests, high mountains, and marshes

¹ See below, Chapter VIII.

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—were minimal in this belt, although stretches of deep and arid sands and the ranges of young fold mountains, as in Central Asia, had to be negotiated. The open spaces of Central Asia have often been likened to a great sea, so easily do they permit passage without necessary change in the means of transport, and the camel and the horse, both native to the region and capable of domestication, became the ships respectively of the desert and the steppe. Both were well equipped physiologically to range over broad, level, and open areas, where the vegetation and water essential for their sustenance were widely scattered. Similarly, in other parts of the world, characterized by different conditions of physique, climate, and vegetation, other native animals were domesticated and adapted, though with varying degrees of efficiency, to the environment. Thus in Egypt and Mesopotamia, as in the Mediterranean lands, the ass was a useful servant, although he could not stand the cold of countries farther north. In the Andean highlands of South America the llama was the only beast of burden, but amongst the natives of North America no baggage animals were employed, since neither the bison nor the caribou was ever domesticated. By acclimatization, and by selective breeding too, useful animals were introduced into lands beyond, and climatically different from, their original habitats. The horse, above all, proved very adaptable to different climates, and the hybrid mule, which is stronger than the ass and surer-footed than the horse, became the most dependable baggage animal in rough and steeply graded country, and was adaptable to lands which were too cold for the ass.

Many local inventions which, with varying degrees of success, met the needs of transportation in different localities invariably bore "an environmental stamp."¹ This is true, for example, of the many forms of river craft known to history and prehistory: boats or rafts

¹ P. Vidal de la Blache, *Principles of Human Geography* (1926), p. 351.

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were made of inflated ox hides, of bundles of reeds, of hollowed tree trunks, of seal skins, or of birch bark, according to the animal and vegetation products available from place to place. It is true, too, of more fundamental discoveries, such as that of the wheel. As might be expected on geographical ground, this great discovery was made in a flat lowland where the best conditions obtained for its use in traction. The earliest use of the wheel—it was first made of wood—is attested in the riverine plains of Egypt and Lower Mesopotamia.¹ The wheel was employed also in the steppe-lands of Central Asia, where topographical conditions again facilitated its use, and the great covered horse-drawn wagons, such as those used by the Scythians and later by the Mongols, became a characteristic means of transportation amongst the nomadic folk of Central Asia. For this form of transport, as for that speedier means, horse-riding, nature provided over wide areas, except where deep sands or mountains occurred, broad, firm, and flat roads, which are much superior to many of the artificial roads of China. Similarly, as the Romans discovered, a heavy wheeled plough was invented in the plain of northern Gaul, where it was well suited to the local surface features as it was ill-adaptable to the tiny hilly fields characteristic in the Mediterranean lands.

Let us now attempt to answer our first question: In what senses, if at all, did natural routes exist? We have seen that in certain areas, especially in Central Asia, geography indicates vast terrains where transportation of men and goods could be undertaken without the need of constructed roads. Further, we may say that geographical conditions—the distribution of land and sea, of relief features, of navigable rivers, and of natural vegetation—define certain broadly zonal routes as the most practicable, though not necessarily the shortest, between separated human habitats. In this

¹ See below, Chapter VIII.

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sense, therefore, routes, as distinct from roads, can be said to have existed before men marked out their own ways, either by the deliberate building of roads or, as was more common, by the continual tread of their comings and goings between particular objectives.

Among the roads which have grown, in contrast to those which were constructed by Roman legionaries or by modern engineers, are the familiar "green roads" or trackways of England. These form coherent patterns on our downlands and our moorlands, and are often related geographically to evidences of man's presence in prehistoric times. The undulating summits and steep escarpments of our chalk plateaux present firm, well-drained surfaces, along which we trace to-day long-distance routes, which are sometimes minor roads and sometimes mere tracks. What is interesting about these downland ways, as also about moorland ridge-ways, is their independence of the lines of villages which lie along the foot of the scarp and dip-slope of the plateaux. It is clear that they are more ancient than the villages, and that they arose to serve the needs of peoples for whom the uplands rather than the valleys formed the setting to their activities. Certainly, our downland trackways form a remarkable network. The old trackways of the North and South Downs converge on the Hampshire Downs, and continue into Salisbury Plain. From this focus similar tracks led south-westwards across the Dorset Downs to reach the sea at three points, and northwards, by way of the Wiltshire and Marlborough Downs, to the Chiltern plateau, whence one continued to the Norfolk shore of the Wash. Further, distributed alongside these trackways can be found numerous signs of ancient occupation, such as earthworks and contour camps, and barrows or prehistoric graves. It is clear that if we could discover when these camps and graves were first constructed—and on these matters "field archaeology" has shed much light—we should be able to

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determine the antiquity of these routes. Actually, although many sites await excavation, it is probable that our familiar downland earthworks or "camps" were completed in the Early Iron Age, say about 500 B.C., although some of them may well have been partially occupied, as was Maiden Castle,¹ by Neolithic stock-raisers as early as 2000 B.C. There is reason to believe that some at least of the downland trackways may be as old as this, for evidences derived from barrows, stone circles, pit sites, and flint mines indicate that the downs were occupied from Neolithic times onwards—that is, from about 2000 B.C. Thus it may well be that the Pilgrims' Way of the North Downs and the Icknield Way (see Fig. 31) were stamped out and utilized in the Bronze, and perhaps even in the Neolithic Age, although these roads as they appear to-day are made up of stretches which have been made or remade at many subsequent periods.

The Pilgrims' Way led westwards from the Kentish ports to Salisbury Plain, and it may have linked up with old roads which led as far west as Cornwall, important in prehistoric times as a source of tin. The Icknield Way led from the Wash, one of the chief gateways of eastern England, along the escarpment of the chalk, south-westwards, by way of the Chilterns, and across the upper Thames to Avebury, a prehistoric focus of many downland routes. The Icknield Way is of interest, too, as an illustration of how old roads become permanent geographical factors and exert an influence on historical events. Thus it is believed that the West Saxons, whose settlement in the Hampshire Basin formed the nucleus of the kingdom of Wessex, entered England by way of the Wash, and moved south-westwards along the Icknield Way. So also the existence of the Icknield Way helps to explain the siting of a number of towns (see Fig. 31).

What was the origin of these ancient trackways?

¹ See below, Chapter V., p. 101.

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It is certainly relevant to note that they occur in country which, owing to its vegetation cover, its porous subsoil, and its natural drainage, offered to prehistoric intruders the easiest means of livelihood and of intercommunication. Except where deposits of clay and brick-earth overlies the chalk, the downlands possessed a vegetation cover of grass interspersed with beech and ash, for the thin soils and the porous subsoils proved inimical to large trees and heavy undergrowth. Together with stretches of sandy and gravelly country, and the gravel-floored terraces of rivers, the downlands were attractive, as the marshes and forested clay-lands were repellent, to peoples ill-equipped to undertake the stern tasks of clearing forest and draining marshes. It is easy to see why, therefore, as distribution maps of prehistoric cultures indicate,¹ that peoples continually occupied the downlands, which could be reached directly from the sea in Dorset, in Sussex, and in Kent, and found there pasture for their flocks and herds and conditions suitable for primitive agriculture. But were the actual trackways marked out by man, or were they already visible on the ground as a result of the movements of wild animals?

The belief that the routes first used by man in Europe and North America were the tracks impressed by wild animals in the course of their movements in search of water and of pasture has been expounded and elaborated by many writers, including Thorold Rogers. They have described how in England, for example, paths leading from hilltops down to drinking-places or to fords were initially defined by hoofed animals, and how in the North American prairies alleged buffalo trails indicated paths which were utilized in turn by native Indians, American pioneers, and even by railway engineers. To the buffalo (or bison) in particular certain early travellers ascribed not only a considerable

¹ See Sir Cyril Fox, *The Personality of Britain*, published by the National Museum of Wales, Cardiff, 1932.

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sagacity, which enabled it to discover fords and the most easily graded valleys, but also remarkable migratory habits. Actually, many arguments cast doubt on the theory that the human highway originated in the animals' track. It is common knowledge that in level, open country animals spread out widely and do not pursue definite tracks. In Alberta, where the buffalo disappeared about 1882, there were no signs in 1894 of the kind of tracks usually ascribed to it, and no reason to believe that they had been obliterated by man.¹ Many, if not all, of the wild animals of sufficient size to impress a useful track upon the ground were capable swimmers which had no need to seek the fords of rivers: buffaloes were certainly good swimmers, and even domestic cattle, we are told, used to swim across the Menai Strait from Anglesey. Then again, it has been argued that the so-called migrations of buffaloes meant little more than their seeking shelter in woods and scrublands in the dead of winter, and further, that the buffalo was, in fact, one of the most aimless, unreliable, and incalculable wanderers on the face of the earth. In constrast, to cite another recent writer,² we are told:

"The herds migrated slowly; they did not range widely, and their movements were very persistent; extremely hardy, they could easily weather blizzards which would kill domestic cattle. Keeping closer in the lee of the mountains in winter, the same herds moved along the same routes from one natural pasture to another, until they trod out great lanes of habitual migration."

Whatever may be the correct view of the alleged buffalo trails and their bearing on the development of the route-ways of North America, it is not easy to believe that

¹ See on this problem, F. G. Roe, "The 'Wild Animal' Path Origin of Ancient Roads," *Antiquity*, III. (1929), pp. 299-311.

² C. Daryll Forde, *Habitat, Economy, and Society* (1934), p. 56.

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the earliest tracks in England were marked out by cattle. If our downland trackways are conceived as cattle tracks, it would be true to say of many of them that they "lead from nowhere to nowhere." If, on the other hand, we regard them as man-made, they can be rationally explained, since they are related to, and linked up, areas of prehistoric settlement, and they have often as their terminals convenient landing-places along our shores.

It is remarkable how the present English landscape presents a variegated pattern of roads which has been woven in the course of its long history, and this pattern, like that presented by the outcrops of the rocks, can be analysed into distinguishable and datable elements.¹ Each of the major phases of the history and prehistory of England had its characteristic routes, which were either designed, or grew up, to serve the needs of the time, and each successive phase inherited a system of routes to which it added its own. We have already suggested that some of our moorland and downland trackways, which lie along the ridges or hillsides, were marked out by the passage of prehistoric folk, who found a home in the more open parts of these uplands long before our present towns and villages were founded. During the first few centuries A.D., southern Britain received for the first time an arterial system of highways, focused on London, itself a new-comer on the scene. These Roman roads, which were efficiently engineered, were printed almost indelibly on the face of the country, and long continued in use. To our Anglo-Saxon and Scandinavian forbears, who certainly made use of pre-existing roads in the course of their settlement, we may attribute some at least of the many winding country lanes—the roads which "twist and squirm"—which linked up fields, farms, villages, and market towns. If these colonizing folk have left little record

¹ See H. J. Randall, *History in the Open Air* (1936), chap. II, for expert guidance.

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of their local routes, we know that they settled intensively in lowlands and river valleys, which had been formerly much avoided. And the type of road of which they made most use in their everyday life was doubtless not the military highway left by the Romans but local lanes, such as those which G. K. Chesterton had in mind when he wrote: "The rolling English

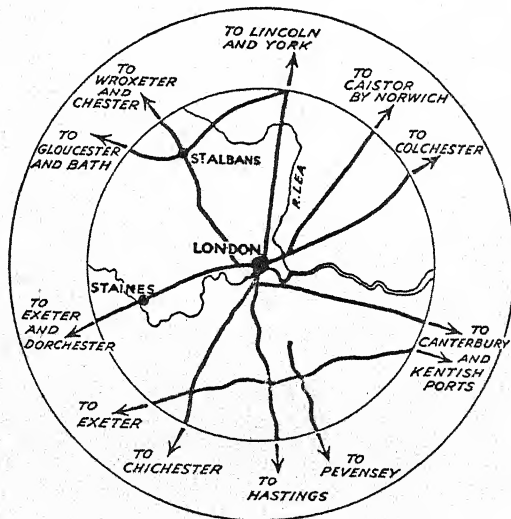


FIG. 17.—London as a route focus in Roman times.

drunkard made the rolling English road." Again, in early 14th century, as a contemporary map, known as the Gough map, shows, a system of routes existed which coincided in part with the alignments of Roman roads, but introduced also new alignments which were related to the needs of the time.¹ Thus although London clearly remained the chief focus of routes

¹ See F. M. Stenton, "The Road System of Medieval England," *Economic History Review*, vol. viii. (1936), No. 1, pp. 1-21.

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(Figs. 17, 18, and 19), there were roads independent of London, such as that which, by way of Oxford, connected the two Hamptons—Northampton and Southampton. We could continue this brief review of "period route patterns" by examining the 17th-century road system, as it was mapped by John

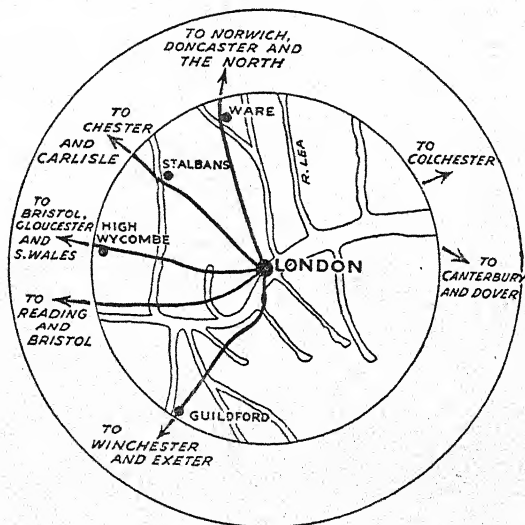


FIG. 18.—London as a route focus in the 14th century.

(According to the Gough map, which did not mark all the contemporary routes convergent on London.)

Ogilby in his *Britannia* in 1675, the engineered roads and railways which were constructed in the 19th century, and finally, the motor roads of to-day. It need hardly be emphasized that knowledge of the routes existing at particular periods is historically important in relation to the problems of transportation, travel, trade, and war.

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Let us by way of illustration examine in two particular cases the natural setting of routes. We will explore first the natural routes along which civilized ways of life first penetrated continental Europe, and second some of the historical routes of England and, more particularly, of Wales.

Neolithic culture, when it appeared belatedly and for

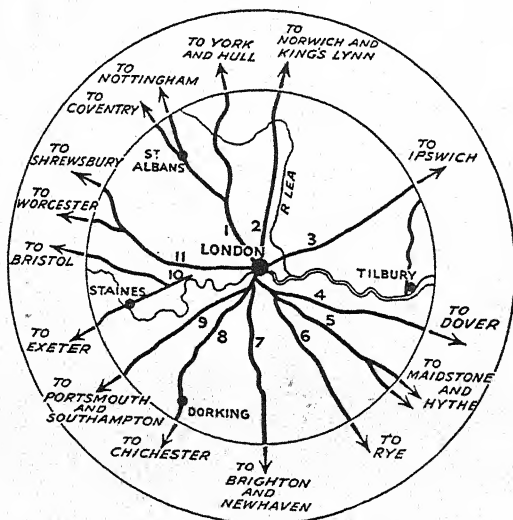


FIG. 19.—London as a route focus in the 17th century.

(Some of these roads—e.g. 2, 3, and 4—broadly coincided with the lines of Roman roads. *cp.* Fig. 17.)

the first time in continental Europe in the third millennium B.C., represented a level of knowledge and technical accomplishment which may fitly be termed civilized. European folk who had reached the Neolithic stage of culture were no longer mere food collectors but food producers: they engaged in agriculture

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and animal husbandry. Further, although Neolithic civilization in continental Europe displayed original and individual features in different areas, it seems right to explain its initial rise in terms of stimuli which came from outside: by the intrusion of peoples and ideas from earlier centres of civilization. These centres were primarily Egypt, Mesopotamia, Asia Minor, Crete, and other parts of the Ægean world.¹

We must conceive of Europe in the third millennium



FIG. 20.—The distribution of loess in Europe.

as covered widely but by no means exclusively with dense forests. The Neolithic period in Europe coincides with climatic conditions which were rather warmer and wetter than to-day. As a result, special interest attaches to tracts of country characterized by porous soils and subsoils. During this warm, wet phase, soils which were derived from loess (see Fig. 20) and from underlying limestone rocks, together with sands and gravels, had a vegetation cover, not of trees and undergrowth, but of steppe-heath flora. Areas so constituted in respect of soils, formed dry, open heath or

¹ See below, Chapter VIII.

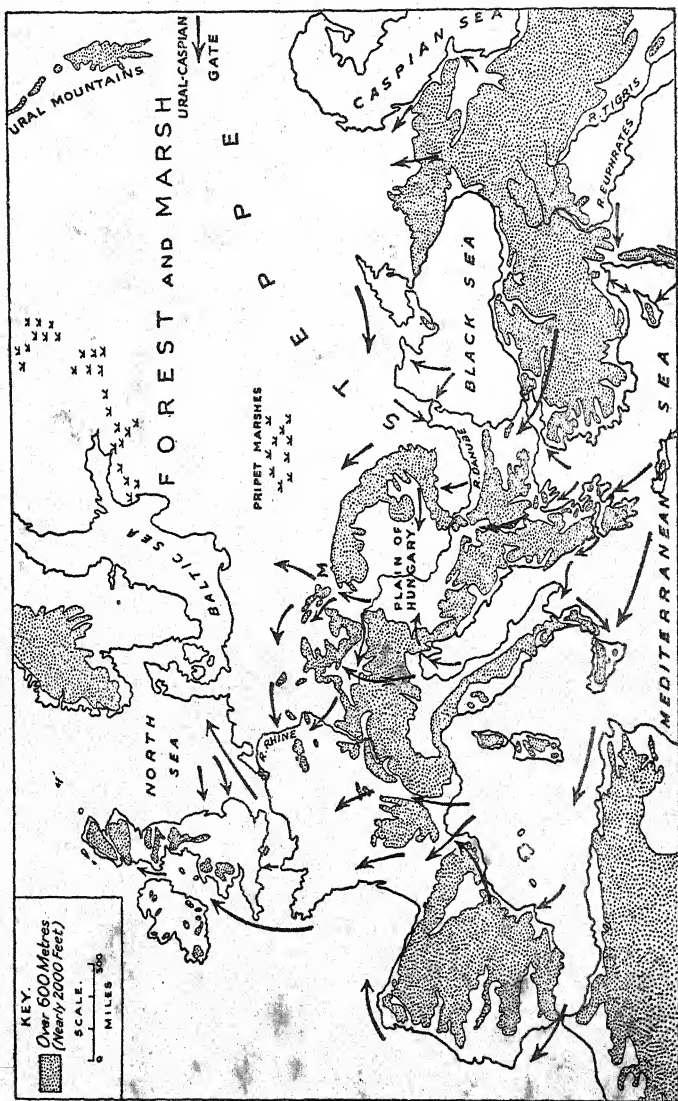


FIG. 21.—Zones of access into prehistoric Europe.
(M marks the position of the Moravian Gate.)

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grassland within surrounding expanses of forest, marsh, and mountain. They were distinguished, therefore, as lands of easy movement, the more so since they stood at plain or plateau levels. Moreover, they provided soils which, given the rudimentary technique of the time, were the best suited to cultivation.

We should expect, arguing thus from physical facts, that the major route-ways of Neolithic Europe sought the dry, open country and avoided the obstructions set by mountains, forests, and marshes. We should expect, too, that these natural routes were broad zones, except where narrow gaps and passes canalized movement. The distribution of archæological finds, which can be assigned to this period, is concordant with this view.

One major route led diagonally across Europe from its steppe margin in the south-east towards southern Belgium, by way of the Galician platform and a foothill zone which lies below the central mountain system of Europe and the North European Plain (Fig. 21). It was defined to some extent by the spread of loess deposits (Fig. 20), and it outflanked not only the mountainous zone but also the extensive marshes of the river Pripet. At its south-eastern end, this route made contact by way of the Ural-Caspian Gate with the broad steppes of Central Asia; so also it was linked with south-west Asia by routes which skirted or crossed the Caucasus mountains. From the northern shores of the Black Sea alternative routes lay open towards the west. One led into the Wallachian Plain and the Bulgarian plateau, which lie respectively to the north and south of the lower Danube, and another, by means of passes across the Carpathians, gave access to the upland Basin of Transylvania. From Transylvania it was easy to move down into the Hungarian Plain; Hungary could also be reached from the diagonal route, by way of the Moravian Gate, which is confined between the Sudetes and Beskid mountains (Fig. 22).

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Other long-distance routes were afforded by the river Danube. The lower Danube was doubtless navigable then, as it is to-day, but insurmountable physical difficulties must have been met at and just above the Iron Gate cataract (see Fig. 20), owing to the swift current of the river as it sweeps through



FIG. 22.—The Moravian Gate and its approaches.

narrow, winding, and rocky gorges. The Hungarian Plain, which lies astride the middle Danube, could be reached, as we have seen, from Transylvania or via the Moravian Gate. A third route, which did not come into use until the Bronze Age, led from the Ægean northwards across the Balkan Peninsula by way of the valleys of the Vardar and Morava rivers.

The Hungarian Plain was so placed and so constituted

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physically as to become a great route focus and centre of Neolithic civilization. Wide open areas, aloof from the broad marshes which fringe the Danube, were covered with loess and sands, which thus afforded easy passage as well as pasture and arable land. We have already noted how access into Hungary could be made from the east, and it is not surprising geographically that the first Neolithic peasants of central Europe were established on the loess-covered plateau of Moravia, whence they penetrated into the Hungarian Plain near by. One route ran westwards and another northwards from Hungary, along which the new civilized ways of life could spread. One passed up the Danube valley into Bavaria, whence the plains of the middle Rhine, in Alsace and Baden, could be reached. The other passed through the Moravian Gate, and thence westwards along the diagonal route towards the lower Rhine.

We may conclude our survey of the natural routes of Europe by noting that entry into the continent from its Mediterranean peninsulas was practicable at only a few selected points. It is remarkable how the young, fold mountains of the Pyrenees, Alps, Dinaric Alps, and Balkans constitute an almost continuous rim to the Mediterranean Basin on its northern side. Passage northwards was confined to a number of gates, gaps, or passes (Fig. 21). The water gate provided by the Dardanelles, the Sea of Marmora, and the Bosphorus led from the Ægean towards the Danube delta and the south Russian steppe. Farther west was the Vardar-Morava route which led to Belgrade on the Danube, and the low but difficult passes of the eastern Alps which afforded a short cut to the middle Danube from the head of the Adriatic Sea. Ingress into France could be made up the Rhône valley, or by the isthmian route marked out by the valleys of the Aude and Garonne. Finally, there were ways which outflanked or crossed the Pyrenees, as there were high passes which in the course of time were opened in the Alps.

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The routes sketched above, along which passed civilizing influences in the Neolithic and Bronze ages, were continually used in historical times. From Central Asia successive waves of nomadic horsemen swept through the Ural-Caspian Gate, whence they moved west along one or more routes, either to ravage, as did the Huns; to conquer, as did the Mongols; or to settle down, as did the Magyars and Bulgars.

Increasingly, as they advanced in material culture, peoples marked out and improved roads to serve their changing needs. It is remarkable how closely these were usually adapted to "the lie of the land" and to the lines of least resistance. Although we must not erroneously ascribe to folk of prehistoric and early historical times the relatively full knowledge of country which we now possess, it is clear that many of them, like our own Anglo-Saxon ancestors, had an eye for country, a sort of geographical horse-sense, characteristic perhaps of those who live closely bound to the soil. It is true that to-day roads can be built without too much regard to physical circumstances, but it is equally clear that such regardlessness may result in high constructional costs. In historical times only exceptionally were routes aligned arbitrarily, as was the St. Petersburg-Moscow railway. In this case the nature of the Russian Plain facilitated the whim of the Czar—the construction of a railroad along the straight line which joins those two towns. In more physically variegated country, however, such geometric alignments of routes were not easily attainable. The Roman roads appear to show a fine disregard of local features of relief and elevation, but actually they often sought the easiest lines, as they avoided low, floodable lands. The Roman roads across the high Pennine moorlands of England, as indeed those of later periods, made good use of the easier gradients afforded by river valleys and of "saddles" which avoided the broader and more elevated parts of the chain. Only later did

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route-makers attain such a mastery over this physical environment that they could carry canals, in tunnels, from one flank of the Pennines to the other, and it is unnecessary to insist that railways, there as elsewhere, normally followed the easiest gradients.

A brief review of the roads which led into Wales from the Border will serve to illustrate the contention that routes were usually well adapted to the conditions of relief. All but the more hardy and venturesome travellers were long repelled by the wild, barren, and lonely uplands of Wales, and it was not until the last two decades of the 18th century that North and South Wales were linked up with England by stage coach. Even in the 1720's Daniel Defoe found the Welsh roads fatiguing and somewhat frightening, although—in comparing the mountains of Wales, which are merely the surviving fragments of an ancient mountain system, with the Alps and the Andes, which are young “fold mountains” in an active stage of denudation—he indulged in geographical license. Almost inevitably the major roads sought, where they could, the easier gradients afforded by the valleys, the gaps, and the marginal lowlands. Within Wales it was the plateau levels rather than the moors which offered the chief obstacle to internal communications, because they were covered in part with treacherous bogs. Fig. 23 shows how much of Wales stood above 800 feet, and how little was relatively lowland. It shows also the main easterly trend of the drainage, notably that of the rivers Dee, Severn, Wye, and Usk, which had an important effect on communications, namely that contact between lowland England and highland Wales was easier than between the different parts of Wales.

We may distinguish some six “natural routes” which led from the Border into the interior of Wales. These may be indicated conveniently in relation to the Border towns from which travellers or armies started their journey during and subsequently to the later

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Middle Ages. Two routes led from Chester, passing either along the low, hilly strip of north Wales, or up

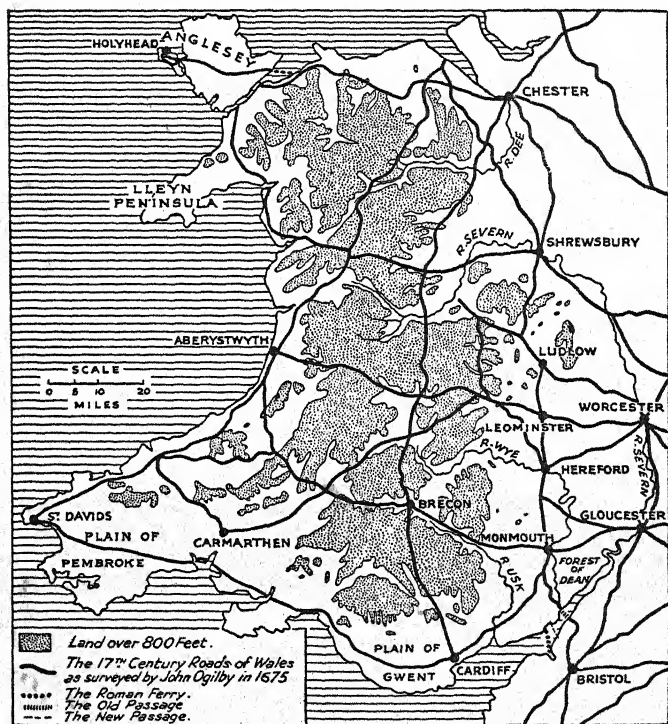


FIG. 23.—Wales and the Border : 17th-century roads.

(The roads are from the Ordnance Survey map of 17th-century England and Wales, with the sanction of the Director General.)

the valley of the upper Dee, which is called the Vale of Llangollen. A third route can be traced from either Shrewsbury or Ludlow by way of the upper Severn, that is, through the Vale of Powis. From Hereford, a

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fourth route passed up the Wye valley, and from Monmouth the upper Usk afforded a fifth route, which continued, by way of the Towy valley, to Carmarthen.

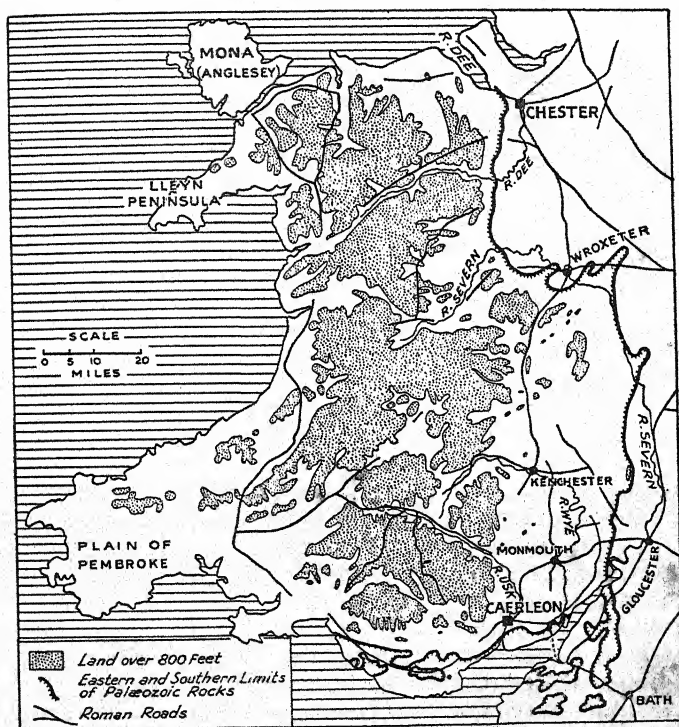


FIG. 24.—Wales and the Border : limits of Palaeozoic rocks and Roman roads.

(The roads are from the Ordnance Survey map of Roman Britain, with the sanction of the Director General.)

Finally, from Gloucester the way lay open westwards through the lowland which flanks the Severn estuary, and thence through the coastal lowlands of Monmouth

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and Glamorgan. An alternative entry into South Wales could be made by using the ferry across the tidal waters of the Severn estuary (see Fig. 23).

Fig. 24 shows the known stretches of Roman roads in Wales, which remained in use throughout the Middle Ages as routes for armies and for colonists from England. It is striking that these roads were much less straight than those of lowland England. In outflanking the many obstacles presented by the physique of Wales, they deviated along the lines of least resistance. Reference to Fig. 24 shows that the natural routes enumerated above were represented in almost every case by Roman roads. It should be noted that the Roman roads in Wales tended to avoid the wet and wooded valley bottoms in preference to the dry slopes of the valley. The starting-points for a journey into Wales in Roman times were, in the case of Chester and Gloucester, the same as in later times, but the Roman prototypes of Shrewsbury and Hereford were respectively Wroxeter and Kenchester. Finally, it should not be inferred that Wales lacked local routes, as distinct from the main highways which led towards the Border. In the course of their seasonal movement of cattle up to high pastures, as in their driving of cattle to market towns, the Welsh made use of numerous ridgeways and other upland tracks. Thus until the end of the 18th century the traditional routes in the Glamorganshire plateau followed the ridges between the deep, narrow valleys which were entrenched within it. It was only with the development of the coal resources of the area that these valleys were cleared of their woods, drained, and settled, and that roads, canals, or railways were aligned along them.¹

¹ On the early roads of South Wales much light is shed by Dr. W. Rees's *Handbook and Maps of South Wales and the Border in the 14th Century* (1933). For an account of the ridgeways of Wales during the Dark Ages, see the papers on Offa's Dyke, by Sir Cyril Fox and D. W. Phillips, in *Archæologia Cambrensis*, 1926-31.

CHAPTER V

TOWNS

"Man organizes the site prepared by Nature, so as to enable her to satisfy his needs and desires."

P. VIDAL DE LA BLACHE.

THE striking discoveries of archæologists in Egypt, Mesopotamia, and north-west India have revealed clearly not only the great antiquity of urban settlement but also its remarkable rôle in the development of civilization. City life provided the social milieu in which human culture reached its most original and developed forms, so much so, that it is not surprising that the words "civilization" and "city" are derived from a common root. The earliest known towns arose within the riverine lands of the lower Nile, the lower Euphrates and Tigris, and the Indus rivers, about, or soon after, 3000 B.C. Their appearance then, as a new form of settlement distinct from the village, has been acclaimed recently one of the chief and novel features of a great cultural revolution. According to Gordon Childe,¹ there were only three major cultural revolutions throughout the whole length of human history, of which two occurred in the riverine lands between 6000 and 3000 B.C. during a phase of so-called Neolithic culture.² The first revolution, which took place in the 5th millennium, was characterized by the discovery of agriculture, of the domestication of animals, and of many useful arts, such as weaving, by groups of people

¹ V. G. Childe, *Man Makes Himself* (1936).

² See below, Chapter VIII.

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who dwelt in villages. The second revolution, in the 3rd millennium, brought with it the town, together with many inventions and new practices, such as metallurgy, architecture in brick and stone, trade, writing, and the use of a calendar. On this arresting view of the origin and development of civilized life, only the Industrial Revolution of the 18th and 19th centuries A.D. remained drastically to modify the material basis of civilization.

The rise of towns, throughout the Old World at least, may be explained as the result of the diffusion of the idea and forms of city life from the three areas of primary or earliest civilization which we have noted above. It is difficult, however, to accept the extreme diffusionist view that discoveries and inventions were made in, and diffused from, one place, such as Egypt, for in Central America, when Columbus arrived there, the urban type of settlement had emerged, independently, it would seem, of contacts with the Old World. It seems reasonable to believe that the flow of cultural currents from either Egypt or Mesopotamia explains the rise of cities in Crete, Asia Minor, Syria, and Palestine. It fell later to the Phœnician cities along the Syrian coast and to the cities of Greece, which had received stimuli from Crete near by, to establish numerous cities along the coastlands of the Mediterranean and Black Sea Basins, whilst in Tuscany and even beyond the Apennines the Etruscans established inland and coastal cities. The Roman Empire, as it grew, founded cities beyond the limits of the Mediterranean lands, as far west as southern Britain, and as far east and north as the valleys of the Rhine and Danube. The sites of many Roman towns bear towns to this day, but in some cases the post-Roman towns occupy sites near to, though not identical with, the Roman site, as in the case of St. Albans which grew up close to the former Roman Verulamium. Nor is it always clear that cities found on or near Roman sites had a continuous history. In the course of the Middle Ages, too, both beyond the

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Rhine and Danube, as also within the area formerly ruled by Rome, many new towns were founded.

Since they are such complex entities and present so many facets, towns can be classified in various ways. When we speak of market towns, seaports, capital cities, county towns, or industrial towns, we are distinguishing them in terms of their varied functions. Alternatively, we may classify them according to the size of their population. Again, towns differ in their legal status and may be classified on this basis. But however we distinguish them, towns usually present recognizable features on the ground unlike those of rural settlements. A relatively large aggregation of population on a particular site, a town is engaged in specialized functions, such as trade, industry, defence, administration, political or ecclesiastical organization, and these are reflected in its markets, workshops, harbours, courts of law, fortifications, and cathedrals. These functions were commonly, if not exclusively, urban; agriculture, on the other hand, was usually, though not exclusively, associated with rural types of settlement—villages, hamlets, and homesteads. Finally, a normal geographical feature of a town is its "nodality": in general, a town tends to become a focus of routes which permit wide regional or even international relationships. This superiority over the village in facility of communication and transport is the result of human effort, but it is remarkable how often the geographical site and setting of towns are such as to imply a natural convergence of routes.

Our problem here is: In what ways does geography throw light on the history of towns? The answer can be stated briefly. By studying towns as particular elements of the countryside the geographer can explain, above all, the physical site and the positional setting of towns, and in so doing he is able to supply useful clues not only to their origin and distribution, but also to their functions and their changing fortunes.

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Close study of particular towns suggest that their sites, far from being fortuitous, appear to have been rationally selected. "Man chooses and then utilizes the site prepared by nature." Admittedly, his needs and purposes continually change. Sometimes, indeed often, the primary need was for a naturally defensible site, protected by marshes or waters or by the form of the land. At other times settlers, such as the Greek colonists of antiquity, sought rather the means of agriculture, although they sought also facilities for defence and maritime trade. Sometimes the purpose of the foundation was political: thus in the case of Washington a federal capital was required in such a position that it could be reached conveniently by deputies from all of the thirteen constituent states. But whether towns were founded deliberately as towns, as in the case of Roman London, or whether they grew spontaneously from humble beginnings, as did Paris and Rome, the factor of site seems to have been important. In the formation of towns two elements may be detected. First, there is the human group, which may establish a castle, an abbey, a market, or a port; and second, there is the physical element, the site, which, if well chosen from the standpoints of local and regional advantages, may foster the survival and growth of the town.

The advantages of particular sites were sometimes rather latent than recognized by those who first occupied them. The Greek emigrants from the Chalcidice peninsula, because they settled at Chalcedon rather than at Byzantium, which lay just across the Bosphorus strait, were accused of "blindness." Actually, they were farmers, not traders or fishermen, and found in the vicinity of Chalcedon excellent lands well suited to their agricultural experience. The Greeks from Megara, who made the first settlement at Byzantium (Constantinople) c. 657 B.C., did not at first appreciate the great potentialities of this incomparable

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site, for they, too, were primarily farmers. It was only later, when they had found agriculture difficult, owing to attacks from the landward side, that they turned their attention to the rich fish resources of the Golden Horn and to the profits of the Black Sea-Ægean trade.

It is clear, too, that some settlements, which were intended by their founders to become towns, failed to develop because they occupied unfavourable sites and positions. This was the fate of some of the less carefully chosen foundations of King Edward I. It is important to remember, too, that towns, like organisms, undergo a process of natural selection. Present-day towns include those which have proved fittest to survive, and in what constitutes survival value the geographical factors of site and position have certainly a place.

Some at least of the activities of towns appear to have been suggested or fostered by the physical character of their sites and their wider geographical settings. The position of a town in relation to local mineral deposits, to agricultural possibilities, and to the facilities for communication and transport by land or by water, may throw some light on its importance and its economic activities.

Again, geographical study suggests an important generalization about the distribution of certain towns and also a reason for their existence. Towns are commonly aligned along the junction of physically contrasted zones. It is tempting to infer that the *raison d'être* of such towns is implied in this geographical fact. For it seems probable that, once people become sufficiently organized, the need arises for points conveniently placed for the exchange of the contrasted and complementary products of the contiguous environments, as also for the change in the means of transport to which each is suited. Thus the most obvious illustration of such a zone of differentiation is the coastland, where a change in the means of transport becomes necessary from the sea-going ship to

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transport by land or by river craft, and whither the products of the land may be brought, together with those of the sea (fish, etc.) and those from oversea. Similarly, at the junction of mountain and plain, or at the junction of the steppe and the "sown," towns may, according to this view, be expected to arise.

Some writers have argued, not very convincingly, that urban development is particularly marked in certain climatic zones. In so far as climate may be an explanatory factor in the distribution of towns, its influence can have been only indirect, and would have to be sought through its effect on vegetation and thus on the means of livelihood.

We have suggested above that in some cases at least changing physical factors may affect the fortunes of a town. Many seaports have been cut off from effective access to the sea by deposits of silt of marine or fluvial origin, or by the formation of shingle beaches, as a result of which their waterway approaches have been blocked or shallowed. In some cases cities were submerged by tidal waters, or by river floods, or by volcanic eruptions; occasionally, too, towns have disappeared as a result of coast erosion. Changes in the fortunes of towns resulted also from economic or political changes in their markets at home or abroad. In such cases the significant factor was geographical only in a secondary sense; it was not related directly to physical conditions but rather to the changed uses to which these were put.

Let us now attempt by examining some "specimen towns" to justify and illustrate this general discussion.

We have suggested that the sites of towns were not selected haphazardly but represent a more or less rational choice from the possibilities available in any area. Apparent or real exceptions to this rule can certainly be discovered. There are some towns which were placed as it were in sheer defiance of geographical conditions. Le Havre was built in the middle of the

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17th century amidst the marshes of the Seine estuary; Yokohama persists on a site subject to periodical earthquakes; Kairuan (= "the tent") was founded by the Arabs as their capital of Tunisia, in the 7th century A.D., for good strategical reasons, yet in the midst of an area of arid steppe; and of Milan it has been argued

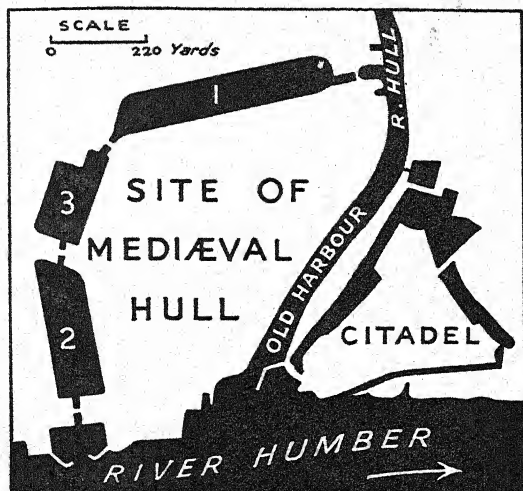


FIG. 25.—The port of Hull, *c.* A.D. 1830.

(The docks marked 1, 2, and 3 were constructed between 1778 and 1829 along the line of the mediæval walls and ditches.)

that almost any site near by would have served equally well as a focus on the plain of Lombardy for routes from the passes of the Central Alps. Perhaps it is wisest to argue that in most cases the physical site chosen offered advantages and disadvantages, with the former usually predominant. Thus the town of Hull, the natural haven of which well equipped it to serve as a mediæval seaport, lacked adequate supplies of

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drinking water and stood on low "salty soil" which was liable to occasional flooding by the tidal Humber (Fig. 25).

Among seaports we can distinguish several typical sites. One of the commonest found in Britain, as in other tidal coastlands, is the bridge-port site near the head of river estuaries. Many of our great seaports, past and present, notably London, Bristol, and Chester, conform to this type; so do also a large number of more local importance, such as Colchester, Warrington, Preston, and Bridgwater.

London, which appears for the first time as a Roman foundation in the 1st century A.D., occupied two gravel-capped hills divided by the river Walbrook, and stood near the tapering head of the Thames estuary, where bridge-building first became practicable (Figs. 26 and 27). Below London one may search in vain for a comparable site, which afforded at the same time security against flood and attack and permitted the building of a bridge. Down-stream from London the estuary is flanked almost everywhere by alluvial flats which were subject to inundation at high water of spring tides. Where hard rock actually occurs on the banks of the river, as at Greenwich and Purfleet, there is no similar "dry point" on the other bank; moreover, the breadth of the river made bridging there an almost impossible task in ancient times. The tides served to carry ships up-stream to London, as the ebb waters helped to carry them seawards. Water supply, too, was available on the site of London from small streams, now covered in: these issued from the base of the gravel deposits which overlie hills of impervious London Clay.

Chester and Bristol present essentially analogous site features, together with local differences. The small sandstone plateau upon which mediæval Bristol arose was washed on one side by the tidal waters of the Avon, and on two sides by a tributary stream, the Frome;

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only on one side was it unprotected by water, and on this side was built the mediæval castle. Since the Bristol Channel experiences a high tidal range, there was ample water, though only at high tide, for ships to approach or leave the town. Further, a little above Bristol, owing to a change in the gradient of the river

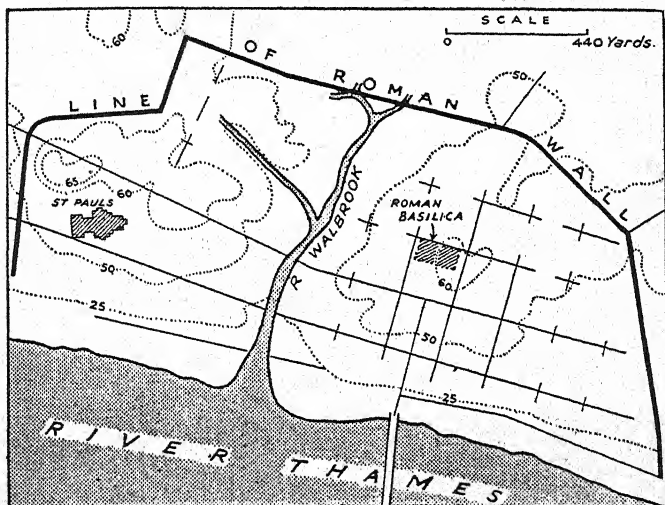


FIG. 26.—The site of London.

(Approximate contours are shown in feet, after H. Ormsby, *London on the Thames*, map XIV. The Roman roads and bridge are shown, but their breadth is not true to the scale.)

bed, the Avon ceased to be navigable, and this physical fact may have helped to confirm the choice of the site. Finally Chester, which, like London, had a Roman origin—it was one of three "castra" or fortresses—stood at the head of the Dee estuary on a hill site.

Another common type of seaport site is that represented by the still flourishing ports of Kingston-upon-Hull and Liverpool. The former, which appeared as a

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town subsequently to the Domesday Survey (1086) and received its charter from King Edward I., stood at the mouth of a small river which drained into the wide and stormy Humber estuary (Fig. 25). The mouth

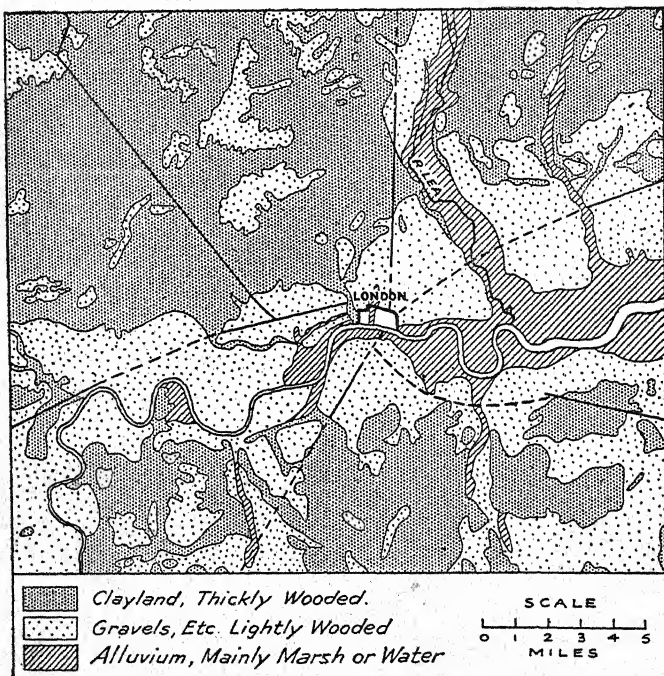


FIG. 27.—Roman London in its geographical setting.

(After R. M. Wheeler, modified. Roman roads are shown.)

of the Hull provided shelter and sufficient space for small shipping until the late 18th century; moreover, there was a more than ample depth of water up the Humber to Hull, for the deep-water channel actually reached the shore at the site of Hull itself. Liverpool,

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too, which received a charter from King John and is marked on the famous Gough map, *c.* 1350,¹ occupied a similar site, but its importance is historically much more recent than that of Hull. Liverpool stood at the mouth of the small river, the Lever, which provided a sheltered tidal haven, called "The Pool," and gave access to the broad mouth of the Mersey (Fig. 28). Unlike Hull, it

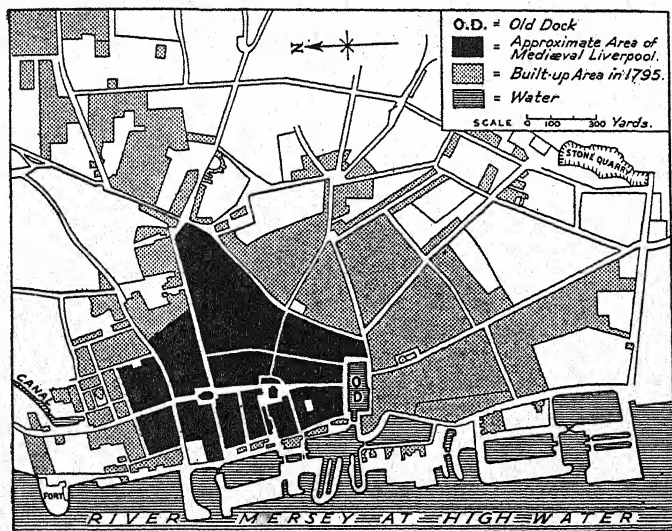


FIG. 28.—Liverpool in A.D. 1795.

enjoyed the advantage of a high, dry site, afforded by a small plateau of sandstone. It was a favourable physical factor in the growth of Liverpool as a port that the Mersey estuary narrows below the town, and has as a result a considerable tidal scour and thus deep water. Both at Hull and at Liverpool the construction of docks to accommodate their rapidly growing trade became necessary in the 18th century.

¹ See above, Chapter IV., p. 74.

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We may note briefly two other types of port sites, which may be illustrated by the small yet once active seaport of Whitby and by the historic port of Marseilles

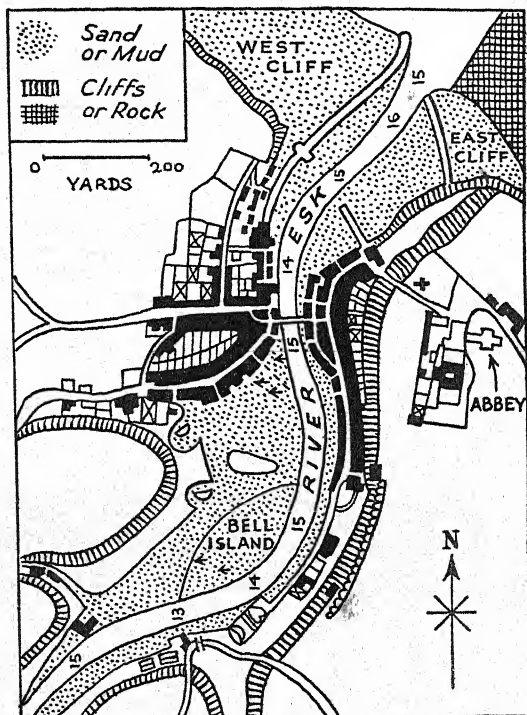


FIG. 29.—The town and port of Whitby, Yorks, in A.D. 1740.

(The figures indicate depths of water, in feet, at high-water spring tides, and the arrow-heads mark moorings.)

(Figs. 29 and 30). Whitby lay at the mouth of a small tidal river (the Esk) on a stretch of inhospitable coast, which was lacking in natural havens. It was important

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both for its shipbuilding and as a port of refuge: it found its easiest routeways on the open sea, since it was shut in landwards by high barren moors. Massilia (Marseilles), which was founded as early as about 650 B.C. by Greek colonists, represented a port site commonly found in the non-tidal Mediterranean.

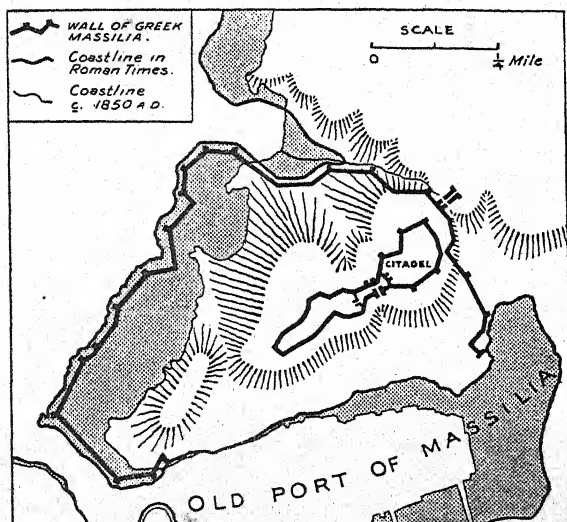


FIG. 30.—The site of Massilia (Marseilles) in ancient times.

(After Desjardins, simplified.)

Essentially it consisted of a steeply sided peninsula, below which lay a small sheltered basin, deep and big enough for the shipping of earlier times, though, as a result of silting, it became useless in modern days, and artificial docks had to be constructed. It is worth adding that Marseilles, like many of the other chief Mediterranean seaports, stands at a little distance from the mouth of a great river (the Rhône), since, owing to

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the absence of tides, the rivers build up great marshy deltas. Moreover, it stands to the eastwards of the Rhône delta, the alluvium of which is carried to the westwards by the anti-clockwise currents, characteristic of the Mediterranean Sea.

There is a "site geography" of inland no less than of

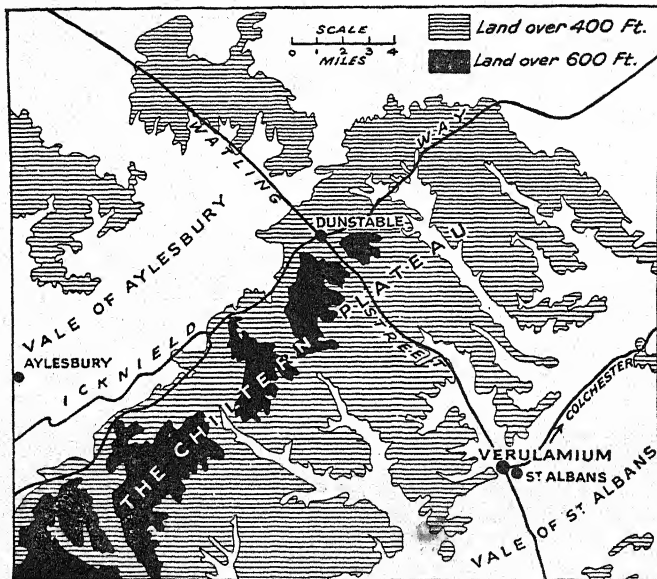


FIG. 31.—Dunstable, Verulamium, and St. Albans.

maritime cities. A group of towns well represented in the scarp-lands of southern England and in the Central Valley of Scotland occupies sites either within or hard by gap-ways through plateau areas. Illustrative of such towns is Dunstable (Fig. 31). It lies in a "wind gap" through the escarpment of the Chiltern Plateau which offers an easily graded route into the Vale of Aylesbury. Southwards, too, from Dunstable the

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valley of the river Ver marks out a route across the Chilterns towards the Vale of St. Albans. We may recall here many similar "gap towns" of the North and South Downs, such as Dorking, Guildford, Arundel, and Lewes. An additional point of interest in the original siting of these towns is their relation to the intersection of old roads which existed before their foundation and helped to define their sites. Thus Dunstable, which became a town only in the Anglo-Saxon period, grew up where the Roman Watling Street crossed the pre-Roman Icknield Way. Roman Verulamium, adjacent to which grew up the later Saxon town of St. Albans, was laid out, near to a Celtic tribal centre near by, at the junction of Watling Street with a pre-Roman trackway which led eastwards towards Colchester (Fig. 31). Similarly, Dorking and Guildford were Anglo-Saxon settlements established at or close to points where Roman roads, built between London and the Sussex coast, crossed the prehistoric Pilgrims' Way, which ran east-westwards along the escarpment of the North Downs. The valley site of Dorchester, a Roman foundation which replaced the more ancient hilltop town of Maiden Castle¹ near by, may also have been indicated as the spot where an old ridgeway of the Dorset Downs crossed the river Frome (Fig. 32). It is just possible that in early mediæval times, as certainly in prehistoric times, the east-west ridgeways were more important than the north-south routes, but this is a matter for research.

Another type of site not uncommon in the English lowland may be conveniently described as the "dry point site," since its chief feature was the security which it afforded from floods. Many such sites can be found on rising ground within or marginal to the Somerset Levels, and within that great tract of fen which formerly stretched through parts of Cambridgeshire, Norfolk, Huntingdon, Lincoln, and central York-

¹ See below, Chapter IV., p. 70.

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shire. This latter expanse coincided with the area covered by a great lake—the Humber lake so-called—during the Ice Age (Fig. 33). Two towns which occupy such sites are Doncaster and Ely. The latter

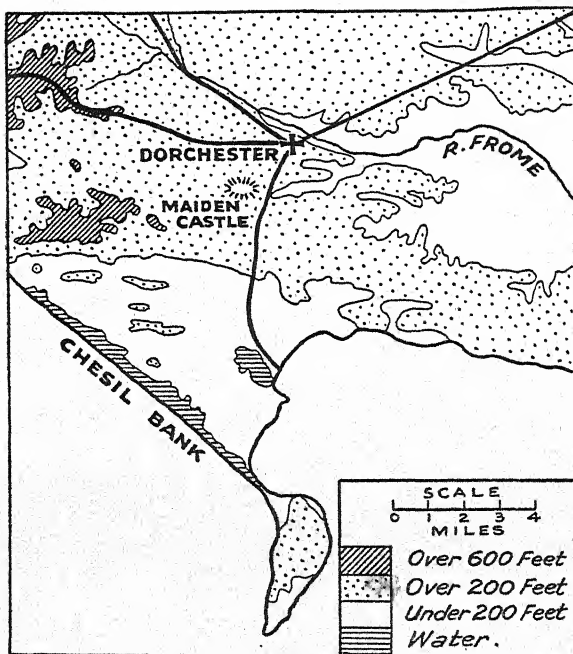


FIG. 32.—Dorchester and Maiden Castle.

(Roman roads are shown. The ridgeway shown had a pre-Roman existence.)

stands on an outcrop of Greensand, capped by Boulder Clay: this formed a hill raised above the surrounding flats of peat which were continually liable to inundation, especially if north-easterly gales coincided with periods of high tides and great rainfall. The former

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arose on rising ground above the banks of the Don at a point sufficiently aloof from the area of low, floodable land which lies to the east. Originally a Roman town on the great north road (Ermine Street), Doncaster, like Cambridge, was so placed that north-south routes could conveniently outflank the marshy flats.

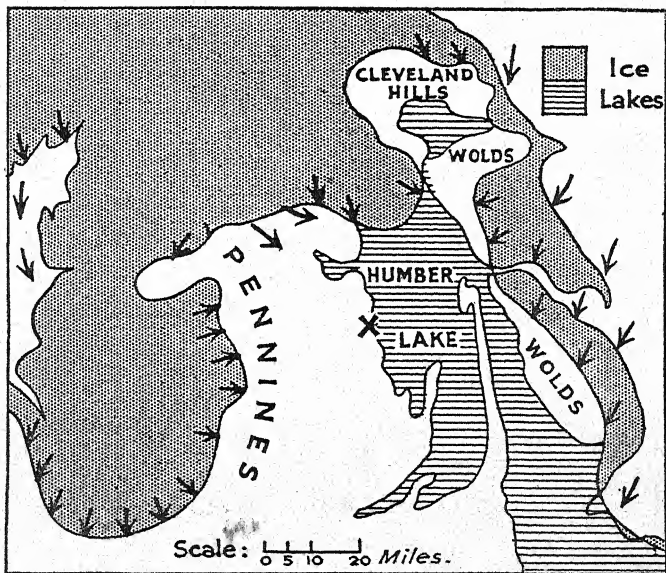


FIG. 33.—The Humber Lake during the last Ice Age.
(The cross marks the position of Doncaster.)

The historic town of York occupies a very striking site. The town stands on a narrow belt of hills which extends across the low Vale of York (Fig. 34). This belt is an instance of a "moraine," that is, it was formed from the debris of rocks deposited by glaciers during the Ice Age. The morainic ridge offered the most convenient route across the vale, and thus be-

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tween the Yorkshire Wolds to the east and the Pennine hills to the west. To the north of it, where Boulder Clay covered much of the vale, woods, including the Forest of Galtres, were extensive, and to the south, where lacustrine silt floored the plain, passage was obstructed by stretches of marsh. Actually a pre-

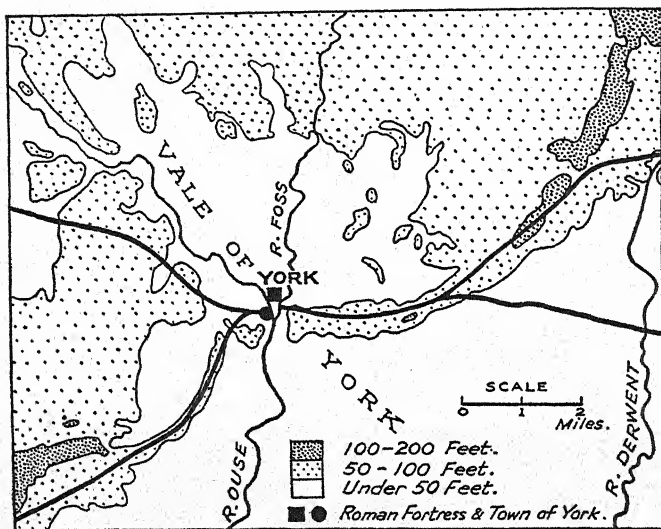


FIG. 34.—The site of York.

(Of the Roman roads shown, that along the morainic ridge coincided with a prehistoric trackway.)

historic road passed along the morainic ridge from the Wolds, which was an outstanding area of prehistoric occupation, and the Romans, doubtless using this road, selected a site for a fortress at the point where the river Ouse breaks through the ridge and receives a tributary, the river Foss. Like Doncaster, York had the advantage of accessibility by river to small sea-going ships, which could reach the town by way of the

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Humber and the Ouse. Once founded, York became an important route focus: until the 1790's, it possessed the first bridge across the Ouse,¹ and resort to a ferry was necessary if a traveller wished to cross this river below York.

We cannot explore further the many varieties of urban sites of inland towns. It is remarkable how in England these are commonly related to rivers. Some are natural fording points, such as Wallingford, an Anglo-Saxon foundation on the Thames.² Others, such as Sheffield, stand at a point where streams converge.³ Others, again, such as Norwich and Canterbury, occupy firm raised ground at or near the head of navigation for small sea-going vessels or for river craft. Under contrasted conditions of land forms and climate, however, towns often avoid the rivers, which may be unserviceable as waterways and liable to violent floods. This is true of many parts of the Mediterranean lands.

We have suggested above that lines of towns can often be traced along the junction of contrasted physical environments. By way of illustration we may refer to some particular cases shown in Figs. 35 and 36. Many of the towns of the North Italian Plain are aligned along east-west zones, parallel to the axes of the Alpine and Apennine folding. Along the arable and well-watered belt at the northern foot of the Apennines the Romans constructed the Æmilian Way and founded many towns (Fig. 35). These stood on the banks of rivers which descend from the mountains into the plain, and were well placed to become markets for the hillmen and plainsmen on either hand. Significantly

¹ In the 1790's a wooden "leaf bridge," which opened to allow the passage of ships, was built across the Ouse at Selby below York. If a motorist to-day wishes to cross the Ouse below York, he can either pay toll at Selby or cross at Goole.

² See Hilaire Belloc, *The Historic Thames* (1909).

³ The convergent streams at Sheffield were significant, not as waterways, but as sources of motive power.

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there were few towns on the banks of the river Po, which meanders sluggishly through a broad expanse of marshy flood-plain. Again, a clearly marked zoning of towns occurs along the margins of the Central Valley of Scotland where it impinges on the moorland edge of the Highlands and the Southern Uplands. So, too, on the Welsh Border, near the junction of the Welsh plateau, with its sheep runs and its cattle pastures, and



FIG. 35.—The distribution of Roman towns in the North Italian Plain.

(The dotted line marks the present coastline, land having been built up from the deposits of the Po and other rivers.)

the lowland, with its mixed arable and pastoral farming, we can discover an alignment of towns, of which Oswestry and Wrexham are representative (Fig. 36). We may recall also the many foothill and market towns which surround the high Dartmoor plateau and the two flanks of the Pennine Chain. Among these are included Leeds, Wakefield, and Manchester (Fig. 37). The rivers by which these three towns stand, though useless for navigation, are useful in defining well graded routes up

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to the plateau. Finally, if we look farther afield at physical environments unrepresented in Europe, we may note an instance of towns strung out along the junction of mountain and desert. Thus in the Tarim

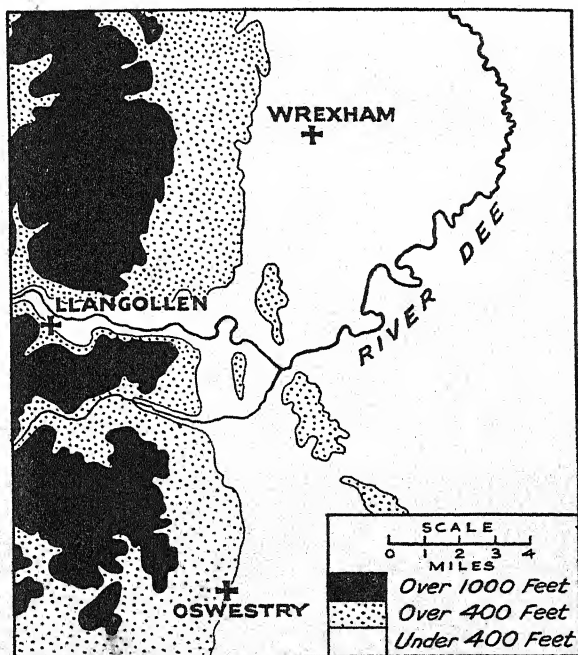


FIG. 36.—The position of Llangollen, Wrexham, and Oswestry.

Basin of Central Asia the towns of Kashgar, Yarkand, Khotan, Cherchen, and Aksu arose on a Piedmont zone of gravels at the foot of mountains in almost rainless country, which extends into the Taklamakan desert (Fig. 61). Thanks to the springs which issue in the Piedmont belt and to the streams which descend from

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the mountains in spring, irrigation and thus cultivation could be practised in the country around these towns.

We have argued above that some at least of the functions of towns seem to be implicit in their sites and positions. That a town should have grown up at or near to Troy seems to have been necessary in those

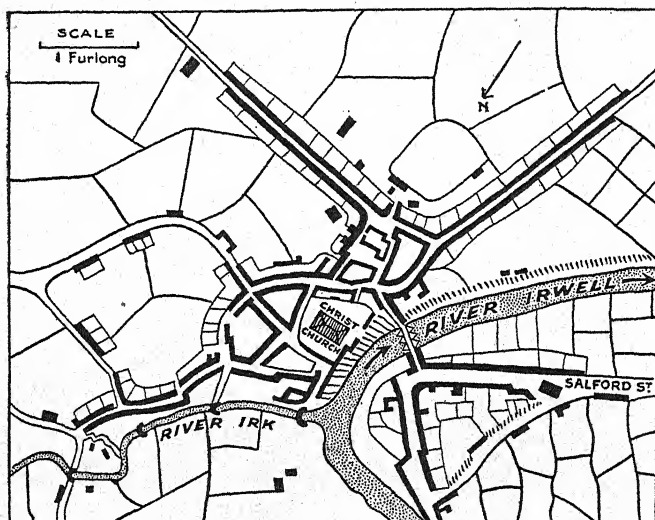


FIG. 37.—Manchester and Salford, c. A.D. 1650.

(After Aikin's plan. The nucleus of Manchester, already in Roman times, lay on rising ground between the Irk and Irwell rivers. Note the beginnings of ribbon development and the fields within and around these settlements.)

early times when Ægean seamen were venturing into the Black Sea by way of the winding, rock-strewn channels of the Dardanelles, the Sea of Marmora, and the Bosphorus. This was a difficult undertaking; a rapid surface current sweeps through the narrow waters from the Black Sea into the Ægean, and, except in

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summer, the prevailing winds are northerly or north-easterly. In the mouth of the river above which Troy stood ships could find shelter, await favourable winds, and take in water and supplies. Again, is it true that, owing to its site and position, London was inevitably marked out as the capital of England? Certainly, thanks to their appreciation of its geographical assets, it became for the Romans the chief route centre of southern Britain when, for the first time, they organized this area as a political unit. It was York, however, since it stood nearer to the Roman walls, and not London, that provided the capital of Roman Britain, and only in the 12th century did London, or more strictly Westminster, become the more or less permanent centre for the government and the courts. Apart from its advantages as a route focus¹ and as a port, London had also the advantage of standing within a lowland tract which, for reasons of soil, climate, and relief, was potentially and actually the most populous and productive part of Britain in the Middle Ages, when agriculture formed the basis of the economy of this country (Fig. 38). It is remarkable that from the time of Domesday Book (A.D. 1086) until c. 1750, when the Industrial Revolution began to alter its distribution, population remained densest in the south-eastern half of England.²

"The Fate of Towns and Cities," said the English antiquarian Camden, "is every jot as unstable as the state and happiness of Men." Many instances could be cited to show that physical changes, no less than human vicissitudes, account for the decline or even the obliteration of once flourishing towns:

"Cities that are not and have been
By silent hill and idle bay."

¹ See above, Figs. 17, 18, and 19.

² See the population maps in *An Historical Geography of England before 1800* (1936), edited by H. C. Darby.

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Bruges, now reduced to mediocrity, though once pre-eminent in north-western Europe, had to yield place to its rival Antwerp, since its waterway approaches

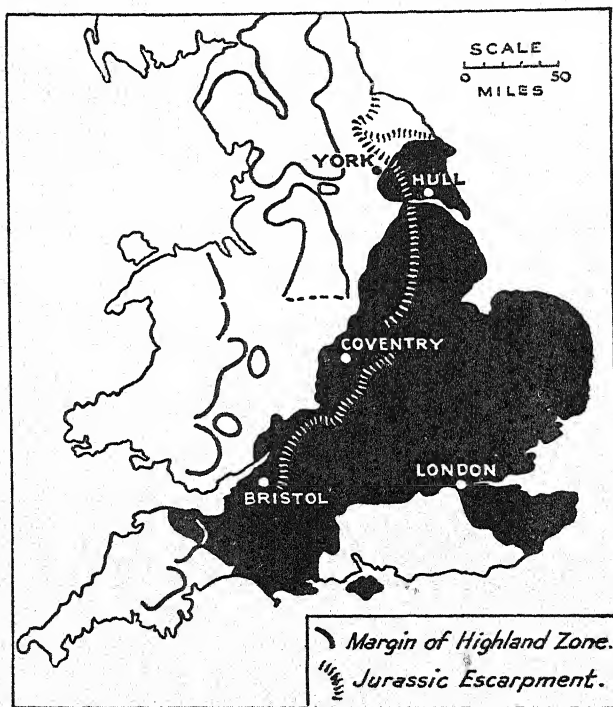


FIG. 38.—The most populous area of southern Britain,
c. A.D. 1400.

(After R. A. Pelham, modified.)

gradually silted up and ships sought the safe, deep waters of the Scheldt. The short-lived town of Ravenser Odd, which enjoyed rather more than a century of economic prosperity, has a sad history which was

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rigidly controlled by physical circumstances. The site of the town was a small sandbank, which had been built up from marine deposits, close to the headland of Spurn (Fig. 39). Fishermen found it useful for drying their nets and landing their herrings; then merchants

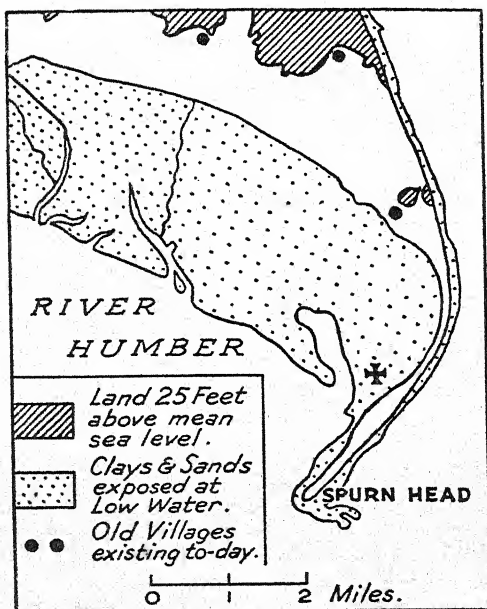


FIG. 39.—The former site of Ravenser Odd.

(The cross marks the site according to J. R. Boyle, but T. Sheppard argued that it lay to the north-east of the present position of Spurn Head.)

were attracted there, and such was its prosperity that Grimsby, situated across the Humber, felt its competition sorely and vented its displeasure plainly. But although it received a charter from the Crown, and even sent members to Parliament, Ravenser Odd virtually disappeared in the mid-14th century, being

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drowned by the same tidal waves which had created its site.

Some of the so-called Cinque Ports of Sussex and Kent suffered a fate no less drastic in the Middle Ages.¹ Along these coasts two natural forces were at work which, together with the draining of the marshes, eventually contributed to undermine maritime activity. One of these natural forces was the eastward drift of shingle along the Sussex coast which caused the formation of "false beaches." The other was the erosion of jutting headlands by the sea. As a result of this erosion, some towns, notably Old Hastings and Old Winchelsea, originally Saxon foundations, utterly disappeared. Other towns, for example Rye and Romney, witnessed the gradual shallowing of their deep water approaches behind the formation of beaches of shingle, and became "ports of stranded pride." Seaford suffered the unusual experience of losing its natural haven, as the estuary of the Sussex Ouse shifted westwards, and it lost its maritime functions to Newhaven, which, appropriately named, sprang up during the reign of Queen Elizabeth by the banks of the shifted estuary.²

It would not be easy to-day to guess that Richborough in Kent was an important naval seaport of Roman Britain, for it lies to-day well inland and surrounded by low meadows. Its original site, however, was an island within the Wantsum Channel, which was then a tidal waterway dividing the island of Thanet from the mainland (Fig. 40). The drift of shingle formed a bar which blocked the eastern entry to the Wantsum, near which stood the Saxon seaport of Sandwich. As a result of the shingle spit, the Great and Little Stour rivers, which drained into the Wantsum, deposited their silt in the Channel; nor were the tidal

¹ See J. A. Williamson, "The Geographical History of the Cinque Ports," *History*, XI. (1926), pp. 97-115.

² See F. G. Morris, "Newhaven and Seaford," *Geography*, XVI. (1931), pp. 28-33.

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waters able to scour it effectively. In the mid-15th century there was more mud than water in the Wantsum; the sheltered waterway disappeared, and reclamation converted it into useful pastures:

“Where Argosies have wooed the breeze
Simple sheep are feeding now.”

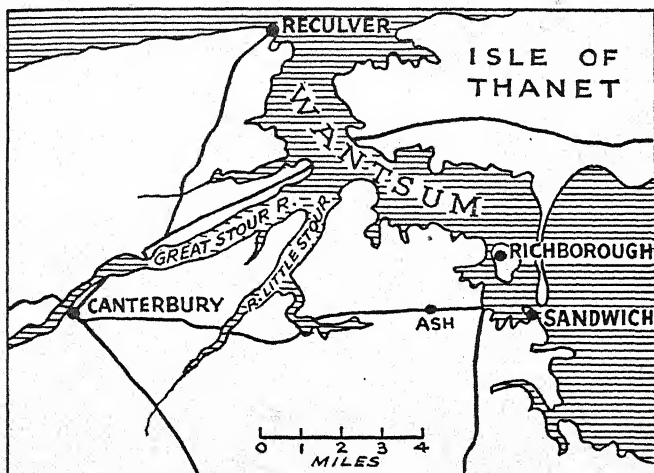


FIG. 40.—The Wantsum Channel.
(Roman roads are shown.)

We need not enumerate here many other instances of similar adverse changes. The fate of Chester, which was well placed at the seaward margin of the Midland Gate of England to serve as a port for Ireland, was virtually sealed from the mid-15th century onwards owing to the accumulation of sands in the estuary of the Dee. Even some of the seaports of non-tidal seas suffered comparable adversity. Ravenna and Aquileia, great Adriatic seaports of imperial Rome, are now inland settlements, cut off by drained marshes from the

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sea. Changes in rainfall in semi-arid areas, in co-operation with human factors, may account for the decay or abandonment of towns. The busy trading city of Palmyra, for example, which lies on the eastern plateau of Syria, despite its great vigour and wealth in the 1st century A.D., suffered utter eclipse, as a result

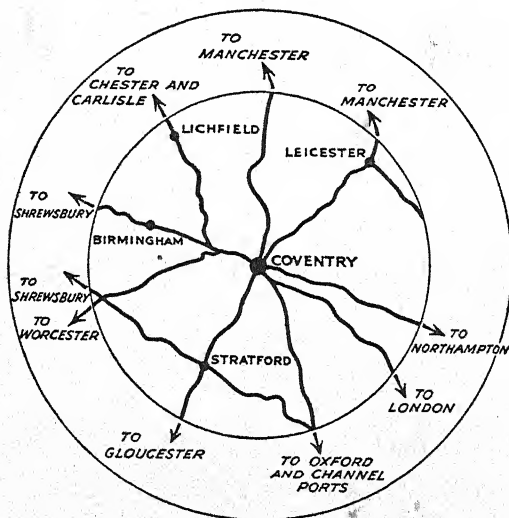


FIG. 41.—Coventry as a route focus in the 17th century.

not only of the commercial competition of Egypt but also, perhaps, of a phase of greater aridity.

In conclusion, we may refer to Fig. 41, which epitomizes our discussion of the changing fortunes of towns. The route facilities of a town do not always or inevitably indicate either its relative importance or the extent and vigour of its relationships with the outside world, but in this instance they are revealing enough. A glance at the road system of 17th-century

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England shows how much more important was Coventry, an 11th-century foundation, than the old Roman town of Leicester, the Anglo-Saxon town of Lichfield, and the nascent town of Birmingham, the fortunes of which had yet to be made.

CHAPTER VI

FRONTIERS AND BOUNDARIES

"Frontiers are indeed the razor's edge on which hang suspended the modern issues of war or peace, of life or death to nations."
LORD CURZON, *Frontiers*.

WHATEVER else it may be, a politically organized territory or state is a geographical entity with a definite location and a more or less definite extent. Throughout history states appear to have been somewhat arbitrarily created, enlarged, or even effaced, yet it is widely if not generally true that they are born and grow as a result of the occupation, settlement, and organization of land. At all stages of its history a state has more or less known limits where it impinges on territories outside its jurisdiction and control. These borderlands form its frontier, and within them a boundary line may or may not be defined. In the frontier zone are usually concentrated a large part of the defensive forces and strongholds of the state, for the purpose of the frontier is to create a strong frame within which the state may exercise its functions and its citizens may live in security.

The distinction in nomenclature between the frontier as a zone and the boundary as a line is essential to any clear discussion of the limits of state territories. The frontier in this sense appears at all periods of history, but the boundary, which has to be surveyed, drawn on maps, and perhaps also demarcated on the ground, is a relatively recent innovation. The first clear instance of boundary delimitation by treaty is in the 9th century, when the empire of Charles the Great was divided

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among his three grandsons (Fig. 42), but no clear demarcation on the ground was then made. In 1718 a boundary was actually fixed cartographically between France and the Austrian Netherlands, but even towards the end of the 18th century frontiers were the realities in Europe, and few boundaries were accurately known. With the development of the sciences of surveying and

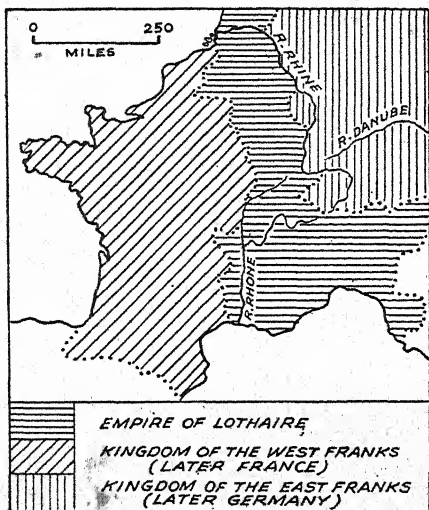


Fig. 42.—The division of the Carolingian Empire by the Treaty of Verdun in A.D. 843.

cartography, and with the disappearance of complicated and entangled legal rights to land, it became possible to define the boundaries of states in Europe with some exactitude. But to-day, when the limits of European states are precisely drawn—as are those of the United States—in other parts of the world, less populous and less surveyed, the linear boundary does not always exist.

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How far does geography enter into the study of the frontiers of states? These, it should be noted, are only one of a number of different frontiers with which the geographer is familiar. Some of these are of more direct geographical interest than the political frontier. There is, for example, the physical frontier proper. Illustrative of this type is the tidal delta: like the sea coasts themselves, alternately part of the sea and part of the land, it is a transitional area between two physically contrasted zones. Similarly, the geographer envisages frontiers of climate, of vegetation, and of settlement. In each case, the frontier is usually a transitional area rather than a sharp divide, and since it is an area of land, it becomes a subject of geographical interest. That the geographical background to state frontiers is a matter of importance, it is easy to see; the very physical nature of the frontier district is of considerable importance to contiguous states, since this has a bearing on the ease or difficulty of communication, transport, and defence.

If we may assume—and the assumption can scarcely be called cynical—that states always desired frontiers which separated them from their neighbours, we can show that certain types of country best serve this purpose. The best frontiers of separation, especially in the past, were afforded by the oceans, the deserts, mountain systems, marshy tracts, and forests, for the good reasons that such areas set obstacles to human movement and could not support a dense population. The frontiers which the Roman Empire organized against the outside world in the early centuries A.D. were well chosen from this point of view. On its western side the impassable Atlantic washed the shores of Roman Britain, Gaul, and Spain. In the south, the Romans halted in North Africa, Syria, and Palestine, on the margins of the vast deserts of Sahara, Libya, and Arabia. In the east, the Empire bordered the upper Euphrates, where it flows entrenched in the Armenian

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mountains, and in the north-east it reached, on the northern shores of the Black Sea, the margins of the Russian steppe. It was in continental Europe that the frontiers of the Empire were less defended by nature and ultimately collapsed before the advance of Germanic intruders. The frontiers there lay along or astride two great rivers, the Rhine and the Danube, which, as is usually the case with rivers, were less physical obstacles than means of contact. The Rhine and Danube could be easily crossed; peoples were settled on both banks, except where alluvial flood plain deterred them; and further, the rivers were useful for navigation.

So far we have avoided the term "natural frontiers," since it is liable to much misconception. It is foolish to suggest that the frontiers of states were predestined by nature, and where real physical obstacles occurred they often failed to become the frontiers of states. Thus, although an island of moderate or small size may seem an obvious framework for a state, it often remained politically divided, as did Britain until 1707. Similarly, the water-parting of the Pyrenees, which divides France and Spain to-day almost exactly, did not coincide historically with a political boundary. The term "natural frontier" is sometimes applied to physical obstacles, such as the Himalayas, which provide great security. It was used also as a cloak to political aspirations, to describe frontiers which would enlarge the state territory. Thus France claimed as its natural frontiers the Rhine, the Alps, and the Pyrenees, which had bounded Roman Gaul, a larger territory out of which France arose in the 9th century (Fig. 43).

We can illustrate from the early Anglo-Saxon kingdoms of England how in early times frontiers tended to coincide with areas of "negative" land, where communication was difficult and settlement largely lacking (Fig. 44). These kingdoms, some of which, like Kent and Sussex, are represented to-day by county areas, were bordered and separated by wood-

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land, marshes, moors, and seacoast. The broad area of marshy peat-and-silt flats which lies around the Wash helped to insulate East Anglia from Mercia;

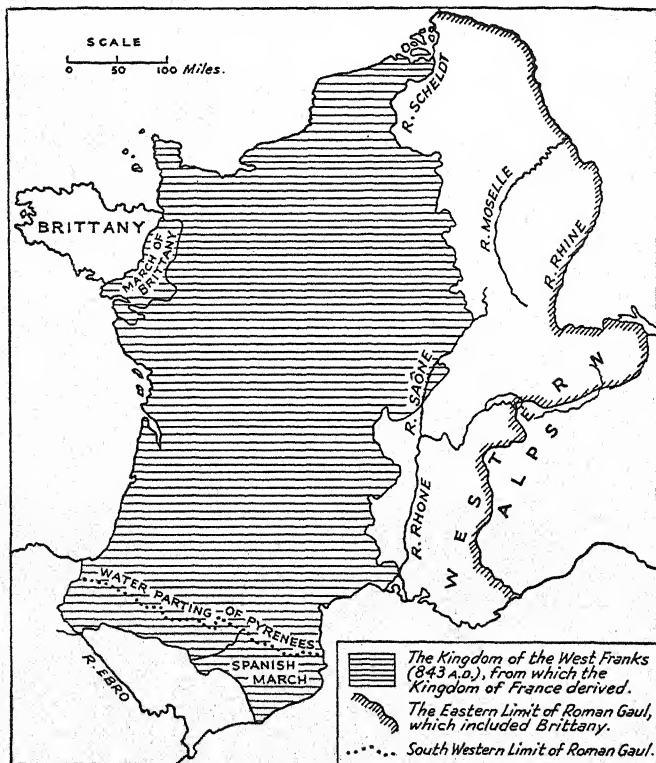


FIG. 43.—The limits of Roman Gaul and 9th-century France.

the dense forests on the wet clay soils of the Weald, together with Romney Marsh, separated the Jutish kingdom of Kent from the South Saxon kingdom; and the most northerly kingdom of Northumberland,

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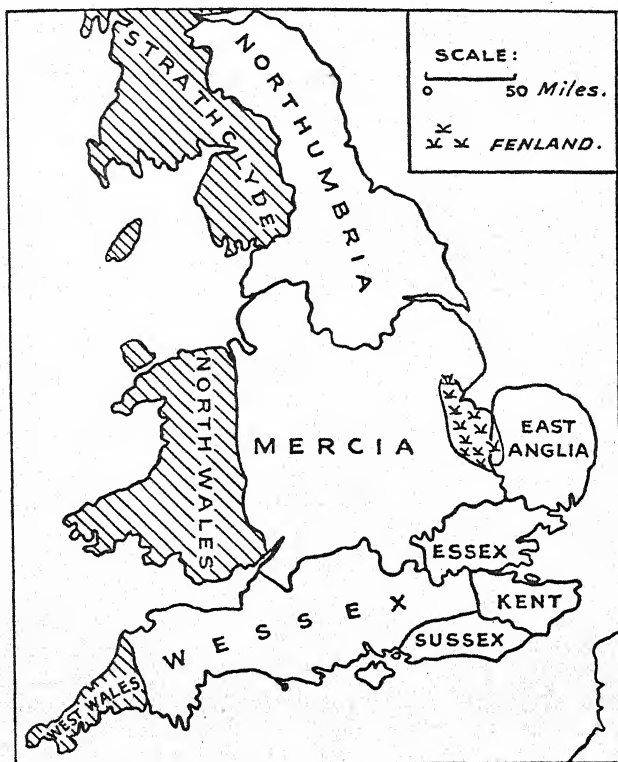


FIG. 44.—The Anglo-Saxon kingdoms in the 8th century.

(The shaded area remained Celtic in speech and in political organization.)

which extended from the Humber towards the southern shore of the Firth of Forth, had its western frontier in the sparsely settled tract of high moorland in the Pennines and the Southern Uplands of Scotland.

In mediæval times two frontiers of contrasted physical types divided Britain politically. In the north, the

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border between England and Scotland corresponded with a broad expanse of bleak upland in which population was scanty (Fig. 9) ; in the west, that between England and Wales lay along a lowland zone where intercourse between the two countries took place easily. The Scottish Border was physically a frontier of separation ; the Welsh Border one of contact.

The political unification of Britain was only slowly accomplished, and of the former political units which have become merged in present Britain we are still reminded in many ways—by the administrative boundaries of England, Scotland, and Wales ; by survivals of Celtic speech in Wales and the Scottish Highlands ; and by the increasing national consciousness of Welshmen and Scots. The historical geography of the frontier in Britain presents a great though only partially written theme. We shall attempt here to review briefly from the geographical standpoint the history of the Anglo-Welsh Border.

Let us start with the physical facts. Is there by nature a region, distinguishable from the rest of southern Britain, which corresponds broadly with the present administrative unit of Wales ? The answer would seem to be "yes," although the landward limits of this region afford matter for discussion. A broad peninsular area of Britain projects westwards between the estuary of the Dee in the north and the Bristol Channel in the south. But if the form of the coast clearly indicates the limits of Wales on three sides, is its landward boundary physically defined ? Does Wales, as a physical unit, extend to the valley of the lower Wye, or even to the estuary of Severn ? Does it, too, reach up the Dee valley, or even beyond it ? We may note several possible physical limits to Wales on the east. Fig. 24 shows the eastern limit of the outcrop of Palæozoic or Primary rocks, rocks of great age which occur throughout almost the whole of present Wales but appear only exceptionally as outliers on the margin

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of the region known to geographers as the English Plain. Is this line significant geographically as well as geologically? Geologically it is significant since it divided rocks of Primary and Secondary age. Geographically it would be significant only if it divided contrasting physical environments. This, however, is not the case, because for various reasons the eastern, and more especially the south-eastern, part of the Palæozoic zone provides a habitat different from that elsewhere in this zone. It is characteristically lowland rather than plateau, and enjoys a lower rainfall and better soils.

If next we examine the elevation of the land within the Palæozoic zone, and if, further, we consider the distribution of rainfall, we can discover a line or lines which are certainly of geographical significance. Fig. 24 shows clearly a contrast between plateau and mountainous country which stands largely above 800 feet, and a borderland which is relatively low-lying although diversified by small detached hill masses. Fig. 45 emphasizes a climatic contrast between the high country which is well watered and the lowland which lies in "the rain shadow" and receives a much lower rainfall.

Finally, in order to complete our picture of a Wales defined by natural conditions, it is important to assess the bearing of the facts of climate, land forms, and elevation on the economic possibilities of this area. We find here justification for a conception of Wales on grounds of elevation and rainfall. For Wales, as we have defined it physically, is equipped primarily for pastoral farming. Grass grows well on its wet, impervious, and often thin soils, and it is favoured by mild winters. On the other hand, there are many factors adverse to arable farming—the cool summers, the excess of moisture, the poverty of the soils and the small area of plain. If in early days the valleys were wooded and the plateau tops often boggy, there remained wide hilly

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tracts, plateau sides, and even mountain pastures in summer, which provided grazing for cattle, horses, goats, and sheep. The cultivation of grain, the basis of farming throughout the English Plain, took a very secondary place in Wales. Even in north-west and

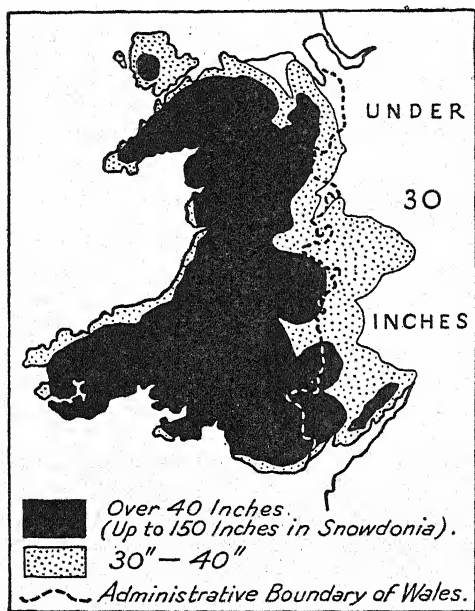


FIG. 45.—Rainfall map of Wales and the Border.

south-west Wales, especially in Anglesey and Pembroke, where sizeable areas of lowland occur, dairy farming and cattle rearing were important in the Middle Ages as at other times. The traditional grain crop in Wales, as in Scotland, was oats—a hardy cereal well adapted to the local conditions of climate. That there did exist a broad distinction between the means of livelihood

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in upland Wales and lowland England is exemplified throughout history. Gerald the Welshman, who wrote¹ in the 12th century, gives us a credible picture of the Welsh mode of life :

" Almost all the people live upon the produce of their herds, with oats, milk, cheese, and butter ; eating flesh in larger proportions than bread. They pay no attention to commerce, shipping, or manufactures. . . . The greater part of their land is under pasture ; little is cultivated . . . neither do they inhabit towns, villages, or castles, but live a solitary life in the woods."

So, too, we are told that English soldiers who were campaigning on the Welsh Border in the 13th century grew mutinous because they were given meat and milk, whereas they were accustomed as plainsmen to bread and ale. Finally, as Gerald also related, the typical settlement in Wales was the isolated homestead ; in the English Plain, in contrast, the nucleated village was widely though not exclusively characteristic. That the scattered homestead rather than the village became, as it still is, the more typical rural settlement in Wales seems to be related to physical conditions—water was available almost everywhere, and pastoral farming, enforced by the nature of the country, was carried on more conveniently from scattered farms. Finally, it is clear that, owing to its poor physical equipment, highland Wales remained at all times down to the first census of 1801 one of the least populated areas of southern Britain.

In short, we may say that at least on physical ground the lowland belt which extends from Cheshire through Flintshire, Shropshire, Worcestershire, Herefordshire, Gloucestershire, and eastern Monmouthshire, constitutes a frontier zone where the Welsh uplands and

¹ *The Itinerary through Wales and the Description of Wales*, by Giraldus Cambrensis. "Everyman's Library" (1908).

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the English Plain meet and the ways of life begin to change. In these borderlands, owing to the wide extent of clay soils, great forests grew in early times and formed an obstacle to settlers intruding from England. Even so, the lowland border formed a zone of easy intercourse as compared with interior Wales. It was a zone of contact in peace and in war between the peoples from the hills and the plain. Intercourse was facilitated by the fact that it was easier to move from Wales into the border than to move within Wales itself (see Figs. 23 and 24).

So far we have argued that in physical geography as such there existed two contrasted and contiguous natural regions—upland Wales and the English Plain. When and in what forms did a frontier between distinct states or cultures first appear? Already in the prehistoric record, as the distribution maps of successive cultures suggest,¹ there are hints of a cultural frontier between the lowland and highland in southern Britain. Peoples and ideas entered Britain on all sides, and of the alternative entries that into Wales and other parts of western Britain is probably the most ancient (Fig. 21). We see indications at different times of loosely framed areas of culture, notably one in the west, co-extensive with Ireland and western Britain, and another based on the English Plain. But there was no hard and fast dividing line, no "Welsh" culture confined to Wales alone. In prehistoric times Wales looked mainly seawards towards Ireland, Cornwall, Brittany, and the Mediterranean, but it was not entirely unaffected by cultures established on the English Plain. Yet it is probably true to say that already by the 1st century A.D., when the Romans conquered southern Britain, certain ethnic differences existed between the peoples of Wales and England. Although at that time the whole of the British Isles was occupied by Celtic-speaking peoples, their population was a mixture of

¹ See the maps in Sir C. Fox, *The Personality of Britain* (1932).

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many elements which had reached their shores in prehistoric times. Among these, peoples of Mediterranean ethnic type were established in the coastlands of the west, including Wales, and it may be inferred

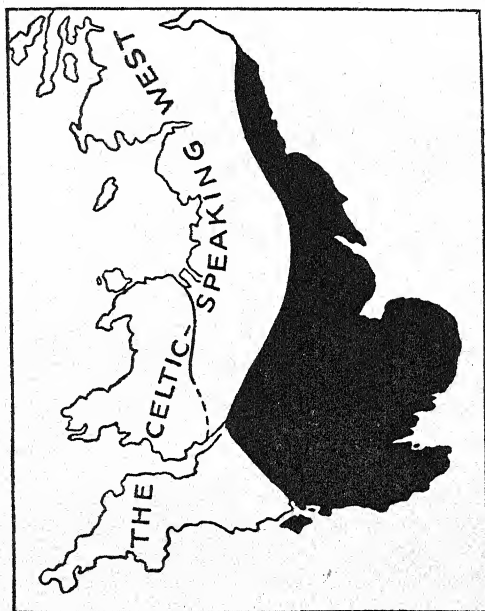


FIG. 46.—The cultural division of southern Britain, *c.* A.D. 650.

(The area of Anglo-Saxon colonization is shown black [after S. W. Wooldridge]. The line of Offa's dyke is shown.)

that they entered Britain by its western gateway, for this element was largely lacking in lowland England.

Clear signs of a Welsh frontier appeared during the Roman occupation of Britain. Although the Roman legions conquered England in four years, the subjugation of Wales took them forty years—and this

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must reflect in part the difficulty of campaigning and the ease of defence in this mountainous and hilly country. Even after its conquest had been effected, Wales remained, as did northern England and southern Scotland, a frontier or military district, distinct and aloof from the Roman civilization of lowland England. In so far as the Romans left their impress on Wales, they did so by their forts and their military roads, for their towns and "villæ"¹ were concentrated mainly in southern England and were almost entirely lacking in Wales (Fig. 24). The separateness of Wales from England was emphasized, too, by the woodlands of the Border, within which few Romanized settlements were made.

In the succeeding phase, when England was colonized by Angles, Saxons, and Jutes, the Welsh frontier took more definite shape. The initial stage of the Anglo-Saxon settlement may be ascribed to the period A.D. 450-650, and it is only from this time onwards that it becomes strictly correct to speak of "England" and "Wales." The word "Welsh"—"a barbarian appellation," Gerald the Welshman called it—is derived from the word "Wealhas" (or "foreigners"), which was applied by the Anglo-Saxon settlers to the peoples of Wales, Cornwall, and west Devon. As Fig. 46 shows, Anglo-Saxon colonization by the year A.D. 650 reached the Severn valley but not the highland zone of Wales. Had these Germanic immigrants spent their force? Did the mountains and plateaux of Wales appear too uninviting an area for settlement? Or was the conquest of Wales too hazardous an undertaking? In any case, when Anglo-Saxon kingdoms emerged later in the lands which had been conquered and colonized, a definite boundary to Wales was demarcated. Offa's dyke, rightly so-called, was constructed along the western border of his kingdom by Offa, King of Mercia, in the 8th century. It began in the north at

¹ A "villa" was a country house or farm.

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a point west of the Dee estuary, and ended in the south along the valley of the lower Wye. These defensive works—a ditch and rampart—were not quite continuous; they were not constructed in the plain of Hereford where dense forests afforded a natural obstacle. Elsewhere, except in Flint and eastern Monmouth, they occupied high ground, standing at above 800 feet. West of Offa's dyke lay Wales, Celtic in speech. East of it stretched the Anglian kingdom of Mercia as far as the Humber, the upper Thames and East Anglia. As its name indicated, Mercia was a "march" or frontier kingdom, Anglian in speech and culture, against Wales, the heartland of the western Celtic fringe. Just how exactly, if at all, Offa's dyke defined the western limit of Anglian settlement is not yet clear.

To the Normans, as to the Anglo-Saxons, the conquest of Wales appeared either too difficult or too unattractive a task. Their policy instead was to create "marcher" lordships along the Welsh Border or within Wales itself; in return for virtual independence the lords of the marches were expected to defend the frontier, and, if possible, extend it at the expense of the Welsh chieftains (Fig. 47). This policy proved very successful, and as territories were added to the marcher lordships, castles were built from which to administer them, and English settlers moved westwards (Fig. 48). Into South Wales particularly settlers immigrated, and English villages, employing the open field system of Midland England, were established in Pembroke, Carmarthen, and south Glamorgan. The distribution of English, as distinct from Celtic, place-names affords a clue to this colonization, and it has been shown that the new English settlements were distributed mainly in lowland parts of Wales, usually below the 600-foot contour in the south and the 800-foot contour in Radnor.¹

¹ See the maps in W. Rees, *South Wales and the March, 1284-1415* (1924), pp. 28 and 129.
(4,719)

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The conquest of Wales was completed by King Edward I. during the years 1278-84. At that time native power in Wales had its base in Gwyned in the

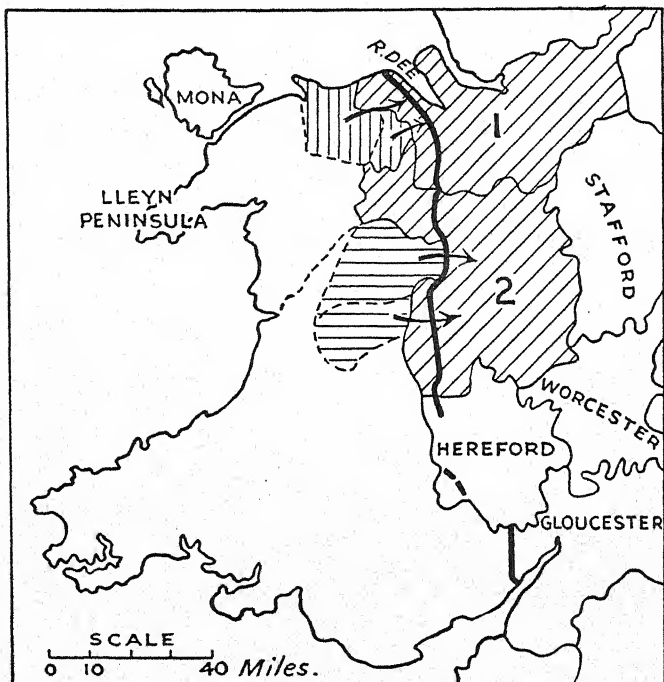


FIG. 47.—The marcher lordships of Chester and Salop in A.D. 1086.

(Marked respectively 1 and 2. The line of Offa's dyke is shown.)

north-west (Fig. 48). This area, which consisted of Anglesey, Carnarvon, and Merioneth, enjoyed two geographical advantages. It was secluded and somewhat inaccessible thanks to the mountains of Snowdonia. Further, it contained in Mona (Anglesey) and

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the Lleyn peninsula areas of lowland "incomparably more fertile in corn than any other part of Wales." "Mona is the mother (*i.e.* nourisher) of Wales," ran

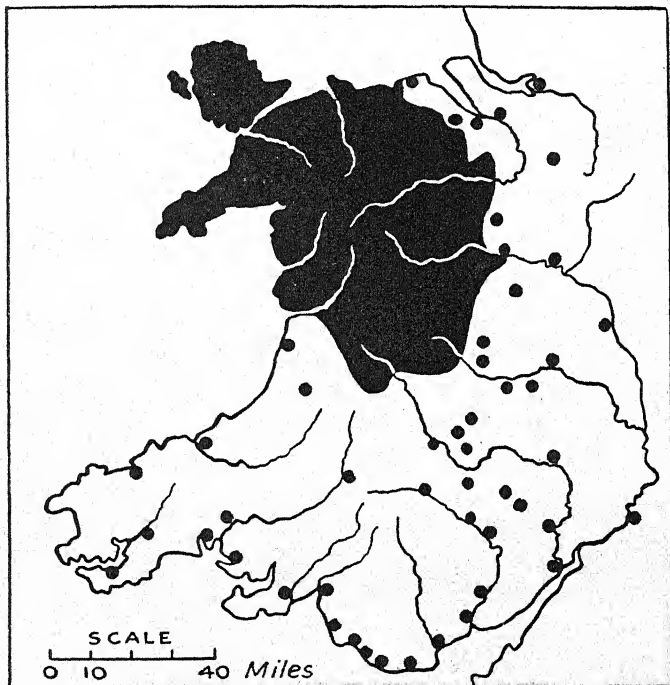


FIG. 48.—The distribution of Norman castles in Wales and the Border.

(Gwynedd is the area shown black.)

the old proverb, and we are told in the 12th century that in the north-west Welsh speech was richer, purer, and more delicate than elsewhere. With the lands which he had conquered in north-west and west Wales, Edward created a principality of Wales, divided into

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six new shires, and vested it in his eldest son, the first prince of Wales (Fig. 49). By 1284, an independent Wales no longer existed; the term Wales now con-

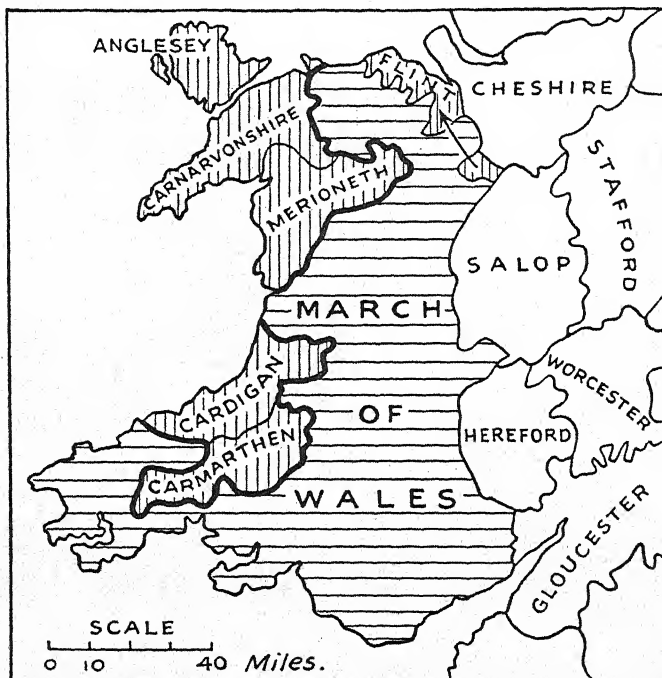


Fig. 49.—The new shires of King Edward I. and the principality of Wales.

(Enclosed by the solid lines.)

noted the new shires, together with more extensive areas—where the king's writ did not run and the marcher lords held sway. In so far as a Welsh boundary then existed, it was defined by the western boundaries of the English counties of Chester, Salop (Shropshire),

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Hereford, and Gloucester, some of which lay farther east than they do to-day.

The reign of Henry VIII. witnessed the final stage

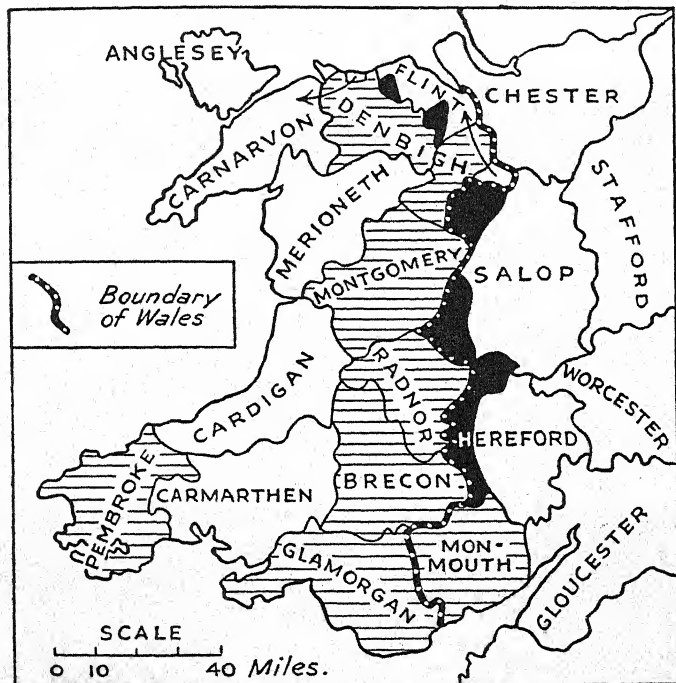


FIG. 50.—The new shires of King Henry VIII.

(The areas shown black were added to the Border counties in 1536.)

in the evolution of the Welsh Border. By an Act of Parliament in the year 1536 the whole of Wales was incorporated politically into the kingdom of England; the lands of the marcher lords were divided into shires, and the limits of the older Welsh shires were modified (Fig. 50). This work, in pursuance of the Act, was

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effected by 1542. Paradoxically, the union of Wales with England was signalized by the demarcation of an Anglo-Welsh boundary, and this boundary, administrative and not strictly political in nature, is that which

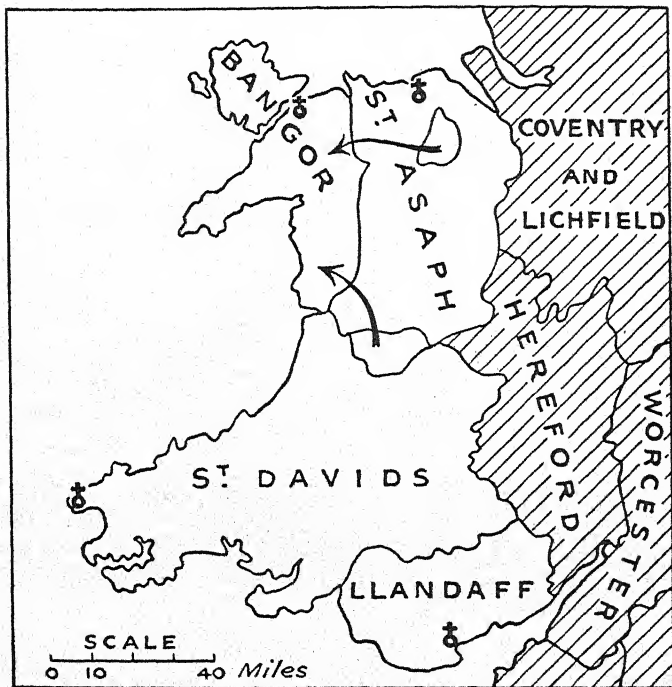


FIG. 51.—The mediæval dioceses of Wales and the Border.

exists to-day (Fig. 50). In effect, the new Wales was made up of the shires of Edward I., together with part of the lands long subject to the lords of the marches. Additions were made to Flint, Shropshire, Hereford, and Gloucester, and Monmouth was newly created as an English shire. We cannot discuss here the bases on

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which the Welsh boundary was drawn. A recent writer argued that "it could not be justified on geographical, historical, or linguistic grounds."¹ Certainly it delimited a Wales smaller than the area comprised within the marches and the shires of Edward I., but it is clear that Englishry had made considerable inroads into all sectors of the marches. Still less did it correspond with the larger area embraced within the four Welsh dioceses (Fig. 51). It is not clear how far the new boundary was related, if at all, to the distribution of Welsh and English speech, but we know that by 1536 English had made much headway, especially in the south-west and among the Welsh squirearchy. The translation of the Bible into Welsh, which was printed in 1588, certainly helped to arrest the decline of the Welsh language, which is spoken to-day by less than 40 per cent. of the inhabitants of Wales.² But on geographical ground the Welsh boundary is not without significance. Except in Flint and in Monmouth, it broadly corresponds to the line of division between highland and lowland, and that line, we have argued, divided not only contrasted habitats but also different economic and cultural phenomena.

¹ J. F. Rees, *Tudor Policy in Wales*, Historical Association Pamphlet, No. 101 (1935).

² D. T. Williams, "A Linguistic Map of Wales," *The Geographical Journal*, vol. lxxxix (1937), pp. 146-51.

CHAPTER VII

HABITAT AND ECONOMY

“ ‘What is it makes a man follow the sea ?’
‘Ask me another !’ says Billy Magee.”

C. FOX SMITH, *Follow the Sea*.

It is no longer believed that human communities passed inevitably and chronologically through three economic stages, those of the hunter, the pastoralist, and the agriculturist. Certainly in the Old Stone Age human groups supported themselves by hunting wild animals and by collecting whatever food was afforded by wild plants or could be found by the seashore, and backward peoples survive to this day, as for example, the fast-dwindling Australian aborigines, who have never outgrown this “food collecting” economy. It would be rash to believe, however, that agriculture invariably came later than stock rearing, and that in particular areas these two forms of “food producing” were both adopted, either together or at different times. Rather it is clear that certain lands were suitable for pastoral husbandry, but not for agriculture, although others, more favoured, could be adapted equally to both. In other words, various regions, owing to their physical character, seem to have implied certain modes of life. But between the physical landscape and what may be called the economic response there exists always man, with his particular abilities, desires, and caprice, so that this economic response is not causally related to the physical background. Nature, despite the limitations with which it hedges human initiative

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and enterprise, is not only very diverse but also remarkably malleable. The geographical link, therefore, between the modes of life of a people and the physical setting, though it clearly exists, is not always so absolute or so self-evident as out-and-out environmentalists believed. Even so, the nature of this link raises interesting problems; it has been suggested that the intermediary of man's work and the direct consequences of this work constitute the real link between geography and history. And if we can discover the nature of this link we shall be able to understand the place of geography in economic history.

The environmentalist's claim that the mode of life of different peoples is forced upon them by the character of their habitats is clearly an over-simplification of the problem and can be easily exposed. Islanders, for example, do not always take to the sea, however it may appear to beckon them; neither the Japanese, nor the English, nor the Corsicans cut much of a figure as seamen for many centuries, and in the latter case the maritime life has never exercised much attraction. The presence of extensive natural resources of coal and iron has not altered the fact that the Chinese have been, and are, essentially peasants rooted to the soil. Similarly, the great wheat lands of to-day, in South Russia and the United States, were traditionally grasslands which supported hunting or pastoral economies. On the other hand, no one would safely assert that in the past men chose their ways of life without regard to the potentialities of their country. Accordingly, geographers have come to adopt an intermediate or "possibilist" position between these two extreme views; they argue that any given area offers its human occupants certain more or less limited possibilities, from which they choose according to their needs, powers, and whims. Logically this standpoint, which was upheld with much ability by L. Febvre in a stimulating work,¹

¹ *A Geographical Introduction to History*, English translation (1925).

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is sound enough, but it may well be that the pendulum, swinging away from the old determinism, has swung too far. It is remarkable how in certain parts of the earth, notably in arid or semi-arid areas, nomadic ways of life have persisted with little fundamental change from the dawn of history. Similarly in the cold deserts of the earth a similar uniformity is found in the traditional ways of life. In other words, where climate occurs in forms very restrictive of plant life the range of economic activity permissible to man is similarly restricted. In mid-latitudes, in contrast, where climate is more congenial to plant life, and therefore animal life as well, man has more scope for his efforts and more varied chances of earning his bread or rice.

The fact that very contrasted ways of life were followed in lands not widely separated from each other is well illustrated from the world that was known to the ancient Greeks. With a keen eye to cultural differences between contemporary peoples, many Greek writers, such as Herodotus and Strabo, who combined in their works much geographical as well as historical information, concluded shrewdly that these differences had much to do with environmental differences. The ways of life of the Greeks, the Egyptians, the Ethiopians, the Persians, and the Scythians were very different, and no less different were their geographical foundations. Let us indicate by reference to ancient Greece and Scythia some particular contrasts in modes of life.

Classical Greece occupied a much smaller area than that of the present Greek peninsula. Essentially it consisted of a peninsula which lay to the south of a line drawn between the Gulf of Arta in the west and that of Salonika in the east, together with numerous islands (Fig. 1). It was a small, variegated world of sea and mountains, of bare rock and tiny plains, chequered by nature into numerous small compartments. Proximity to the interpenetrating sea, its "Mediterr-

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anean" climate, and the close association of mountain, hill, and plain—these were the characteristic features of Greece. Where the land stretched distant from the sea, where, as in Thessaly or Macedonia, large lowland areas occurred, and where, too, the climate lost its typical Mediterranean features, Greek civilization weakened on the threshold of the "barbarian" world. The economy of the Greeks was closely related to, and drastically limited by, the nature of their terrain. Their greatest disadvantage was the large mountainous area, consisting largely of porous limestones, which occupied about 80 per cent. of the surface, although forests of pine, fir, and evergreen oak, useful for their timber and rough grazing, covered it more widely in Classical times than to-day. Their greatest asset was the climate which, despite summer drought, permitted the growth of a wide range of useful plants in the small plains and on the hill slopes. Above all, the Greeks could grow winter wheat or barley, though not in sufficient quantities for their needs; they could grow vines, figs, and olives on the dry, sunny slopes; further, by resort to the practice of "transhumance," they could pasture goats and sheep, although the dry, rough pasture was seldom rich or adequate enough for cattle.

Transhumance, we may note, has always been a practice in Greece, as in other Mediterranean lands and elsewhere, and though in places it has had to be given up,¹ it still survives. It registers an interesting case of human adjustment to conditions set by climate and vegetation. On the lower ground, natural herbage was available only in the wetter season of the year, that is, in autumn and winter, for the summers were both hot and dry. On the mountain summits, in contrast, owing to the effect of elevation on rainfall

¹ The use of artificial feeding stuffs and the use of lowland pastures for cultivation have in some measure militated against the practice of transhumance.

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and temperature, pasture was to be had in the spring and summer, although cold and snows precluded its growth during the winter season. Hence a seasonal movement of flocks from lowland to upland pastures became necessary in those days when artificial feeding stuffs could not be provided.

The sea, too, was exploited by the Greeks. It provided them with food, especially the tunny, and with two shell-fish which were useful as sources of dyes. The sea provided, also, a relatively easy means of intercommunication, for landward mountain obstacles everywhere impeded movement, and the rivers, alternatively torrential or dry, were useless for navigation. The Greeks used the seaways too, as traders, for the transport to oversea markets of their manufactured products. In short, the natural environment of Greece was made to yield the material basis for civilized life only as the result of considerable effort, and it has been said that it required the Greeks in Greece to develop Athenian civilization, and that neither the Greeks elsewhere nor any other race in Greece would have been equal to the task. Classical Greece illustrates also what the German geographer Ritter meant when he argued that certain countries had an educative influence upon peoples.

The country of the Scythians, which was many times greater than the area of Classical Greece, appeared to the Greeks an alien world, remarkable both for its many large and useful rivers and for the great extent of its "level and deep-soiled plains" (Figs. 1 and 21).¹ It fronted the Black Sea and the Sea of Azov, from the delta of the Danube to the mouth of the Don; inland, it stretched a distance comparable with that of its coast-line—a journey of some twenty days. In the north, Scythia ended where the south Russian steppe merged into parkland or forest, and where increasing

¹ The above account of Scythian life is based mainly on Herodotus' *History*, Bohn's edition (1854). Herodotus wrote in the mid-5th century B.C., and actually visited the coast of Scythia.

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winter cold and cooler summers were experienced. In Scythia, Herodotus noted, rain fell more in winter than in summer; these were climatic features untypical of Greece, though characteristic of the "continental" régime in Europe. The winters in Scythia, too, were long and severe—too cold, in fact, for the baggage animals of Greece, the mule and the ass, but not too cold for the horse, for which the broad, open plains provided a congenial habitat. Much the greater part of Scythia, then as now, was destitute of wood. One curious effect of this, if we can believe Herodotus' story, was that the Scythians used the bones of the ox as fuel in the cooking of its flesh. In their economy they contrasted sharply with the Greeks. They remained staunch to the nomadism which they had brought with them from Central Asia. They drove cattle and horses over the rich pastures of the steppe, and sustained themselves mainly by the milk of mares and by making cheese and butter. In the most southerly parts of Scythia which bordered the sea the people sowed and lived on wheat, millet, lentils, onions, and garlic. Others too, near by, grew wheat, "not for food, but for sale." The reasons for this defection from nomadism was doubtless the penetration of Greek cultural influences and the chance and ease of trade in corn by means of the seaways. The great rivers of south Russia yielded, near their estuaries, both sturgeon and salt. The horse was the Scythian means of locomotion, and trade caravans were made up of horse-drawn wagons. For the Scythians, as for nomads generally, overland trade formed an important branch of their economy. It is significant, too, of the nomad's way of thinking and of a strategical advantage that the nomad's way of life enjoys, that the Scythian king informed his enemy, Darius, King of Persia, that he (the former) had no need to force a pitched battle, since, he said, "We have no cities, nor cultivated lands." Without fixed settlements—for the movable

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tent is their usual abode—with their wealth mainly in the form of horses and cattle that can be driven off at need, and with their control of the horse as a means of swift movement, nomads, such as the Scythians, enjoyed a great advantage in defence over sedentary, agricultural folk, much of whose wealth could not be transported to safety, and, if destroyed, could not be easily replaced. The destruction of olive groves in Greece, for example, meant a capital loss, for the trees do not bear much fruit until they have been tended for some twenty years.

It is clear that Scythia, contrasting as it did both geographically and economically with the city-states of Classical Greece, afforded the latter an accessible and fruitful field for trade. Greek cities, which were founded near the mouths of the Danube and the south Russian rivers, served as means of contact and centres of exchange. The Greeks brought their wine, oil, and manufactures; the Scythians their corn and hides.

That the typical Greek was a farmer, tending his olive groves, his vineyards, and his flocks, and that the typical Scythian was a nomad or "a cattle-driver," certainly reflects the very different settings in which their lots were cast. So much so that Greek writers, and others after them, believed that the physical environment differentiated modes of life. Thus Strabo, noting the great contrast between the material culture of the Egyptians and the Ethiopians, wrote: ¹

"The Ethiopians lead for the most part a nomadic and resourceless life on account of the barrenness of the country and of its remoteness from us, whereas with the Egyptians the contrary is the case in all these respects; for from the outset they have led a civic and cultivated life . . . both tilling and following trades."

¹ Strabo, *Geography* (Loeb edition, by H. L. Jones), vol. viii., p. 9.

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That Egypt owed very much to the Nile floods the Greeks had always been well aware, and Strabo knew that these were not so much "heaven sent," as Homer put it, as the result of summer rains in Ethiopia.

But we cannot deduce from the physical environment alone—however fully we study its climate, relief, soils, mineral deposits, position, and so forth—what forms its economic life took at particular periods. From a physical survey alone we can make only tentative statements about the past economy. We can say that in a given area certain things could be produced, others could not be produced, and yet others could be got only with difficulty or by importation. We can say that physical conditions made transport easy or difficult in certain directions, either by water or by land. We can know for what means of livelihood the area seems naturally best fitted. We can assert that climate usually ordains at what season permissible crops must be sown. But when all is said it is very evident that the human factor, which varies from people to people and from time to time, gives its particular stamp to the economic life. Nature imposes; man disposes. But man's action is doubly limited—by his own abilities and by physical possibilities. The physical environment, which appears to set finite limits to the activities of human groups at any particular time, has in fact potentialities which expand or contract in relation to the material culture of these groups. Every terrain, in fact, is a different terrain to every folk which may inhabit it. It is scarcely axiomatic that every terrain gets the folk which it deserves. We need only recall how the cultural ability of present-day peoples ranges from that of Stone Age culture to that familiarly known as Western Civilization to realize that any given area would be exploited very differently by different occupants. Not only would men follow in varying degrees different modes of life, but the actual surface of the area would present different cultural features.

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Let us inquire more closely what are the geographical limits to economic activities. The distribution of minerals, including petroleum, is fixed by nature; where such resources are lacking, all that men can do is to devise substitutes or effect exchanges with other areas suitably endowed. Actually the exchange of metals seems to have begun as early as Neolithic times, and the succeeding culture of the Bronze Age implied the transport of either copper or tin, since these essential constituents of bronze seldom occur together in the same areas of the Old World. Again, the sources of power which provide the basis of modern industrialism are either rigidly localized by geology, as in the case of coal and petroleum, or depend for their production on physical conditions, as in the case of hydro-electric power. Even the energy of the tides and gales, which, on a long view, may become the motive power in the future when coal and oil supplies have been exhausted, has an uneven distribution from place to place.

In respect of the products of vegetation, which furnish both food supplies and raw materials, physical factors, and above all, climate, impose themselves as important conditions. Indirectly, as well as directly, men are dependent on vegetation, for this provides the foodstuffs for animals, which are useful in many ways—as food, as beasts of burden, as motive power, and as sources of raw material. The distribution of natural vegetation, so called, a map of which is useful in the study of an area, bears little relation to the vegetation cover which obtains to-day, except perhaps in some parts of the tundra, desert, and equatorial zones,¹ where human interference has been most difficult and least effective. Thus the former forest cover over the greater part of the United States has been largely removed, especially during the last eighty years (Fig. 52). But the map of natural vegetation is valuable

¹ It is believed that very little of the tropical forest of Africa to-day is, strictly speaking, primitive.

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historically in that it outlines realistically the scene of man's early activities : it throws light on his ease or difficulty of movement and on his chances of exploiting the soil. The distribution of natural vegetation bears a close relationship to the disposition of climatic belts. Similar climatic conditions, however, do not everywhere reflect similar natural vegetation, for plants have not been able to move with equal freedom

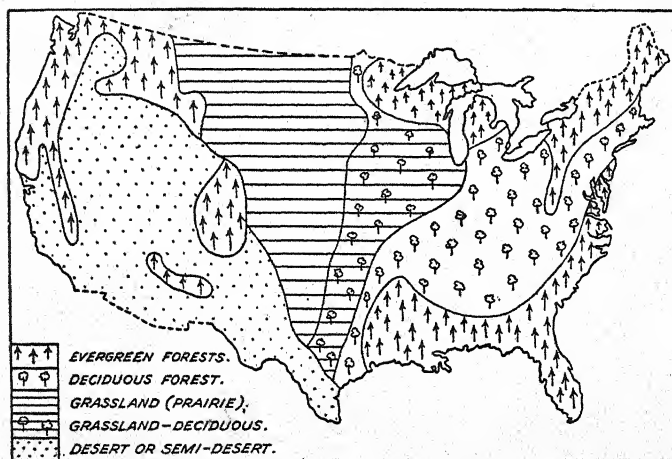


FIG. 52.—The natural vegetation of the United States.
(Much generalized.)

from place to place. The same is true of animal forms ; although there are distinctive genera associated with particular tracts of vegetation, different types of wild animals are found in areas of comparable vegetation. The New World, too, shows a remarkable poverty of natural fauna.

At least from Neolithic times, man began to modify the fauna and flora of his habitat. On the one hand he waged war on certain forms of vegetation and animal

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life, and on the other he began to cultivate certain wild plants and to domesticate certain animals. His opportunity to do these things differed much in different climatic zones. In the far north of Eurasia, for example, climate allowed man little chance either to cultivate or domesticate. In these high latitudes, where the subsoil is always frozen, the growth of trees and grain was impossible, and the scanty natural vegetation—lichen, a few shrubs, and a little grass in summer—could support only a few animals, notably the reindeer, which man learnt to domesticate and use for many purposes—for milk, meat, draught, burden, and riding. No less were his chances restricted in low latitudes where the wild luxuriance of tropical forest, resultant from the combination of great heat and abundant moisture, imposed a masterful obstacle in his way, the more so since it supported and concealed a vigorous fauna and insect life fraught with danger. It was in parts of those extensive lands which lay between the hot and cold deserts that human enterprise had most scope, particularly in sub-tropical lands where a dry season imposed a check on the growth of vegetation and insects. These lands offered to man a large balance of advantage in respect of vegetation. Owing to the seasonal pause in the growing season, forests did not widely attain that impenetrability characteristic of equatorial latitudes, and further, these mid-latitudinal lands were well stocked with varieties of wild trees and other plants, together with animals, some forms of which were potentially useful to man and, as events proved, were capable of domestication. Finally the climate permitted in some of these lands two or even three crops a year. Thus in southern Japan, under monsoonal conditions of climate, which consists of a hot and rainy season following a mild and rather dry winter, two cycles of life were possible in the year.

We can distinguish several broad areas where plants, cultivated by man, grew in a wild state before the

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dawn of civilization, although it is not yet clear which was the original homeland of some of our more important plants, such as bread wheat and barley.¹ Soft wheats, rye, certain varieties of flax, vegetables, and fruit trees, including the vine, were native to Asia Minor, Persia, Transcaucasia, and certain parts of Central Asia. In the Mediterranean lands, including the coast lands of Asia Minor, Palestine, and Syria, there were few wild plants useful for cultivation—the oleaster or wild olive, the fig, emmer wheat, a coarse variety of flax, and a few vegetables. Some experts believe that Abyssinia was an early home of hard wheats, barley, and coffee, and that this was the source of the barley and wheat which were cultivated in Egypt at an early date²: certainly it is remarkable how many varieties of wild grain occur to-day in Abyssinia. Tropical India, again, can claim as native plants rice, sugar cane, and certain varieties of cotton. To the mountainous parts of eastern and central China the orange, lemon, peach, mulberry, tea, soya bean, millet, and oats originally belonged. Finally, native to the inter-tropical parts of the New World were a number of plants which are now cultivated widely, notably maize, cotton, tobacco, tomatoes, and potatoes. The latter actually grew, too, in equatorial parts of South America, since on the lofty Andean plateau climate is so modified by elevation as to make possible the growth of this temperate plant.

It should be noted that each group of plants did not occupy necessarily those areas where climate was most favourable; nor did they occur in all the areas where their growth was climatically possible. It is significant of the uneven distribution of plants within areas climatically suitable to their growth that whereas flax, but not cotton, grew in Egypt and Mesopotamia in

¹ See, on these problems, C. D. Forde, *Habitat, Economy and Society* (1934), and H. Peake, *The Origins of Cultivated Plants* (1928), Benn's Sixpenny Library.

² See below, Chapter VIII., pp. 169-70.

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Neolithic times, cotton, but not flax, grew then in the Indus plain of north-west India. Similarly, although different areas, on account of their topography and vegetation, were especially suited to particular domesticated animals, these did not appear in all such suitable areas. This was due partly to the competition between different genera of animals, and partly to the lack of facilities for widespread migration. Thus the horse appeared early on the open steppes of Central Asia and on the more confined grasslands of Europe, but his later appearance in Arabia and north Africa was due to man.

It is remarkable how very few types of animals and plants have been respectively domesticated and cultivated. It may be true to say that men learnt to cultivate all the plant forms which repaid their efforts, and that they domesticated, though often for originally non-economic reasons,¹ as many animals as were economically profitable and practically possible. Once the arts of domestication and cultivation were mastered—these processes were mostly effected some five thousand years ago in the Old World—people were able to exploit economic potentialities of their habitats which had hitherto lain dormant. They introduced new plants and animals, acclimatizing them doubtless by the method of trial and error. Thus most of the characteristic plants of the Mediterranean lands to-day were introduced at different periods. Bread wheat, the cultivated olive, the vine, the citrus fruits, the mulberry tree, and many hard fruits were established there through the agency of Greeks, Romans, Arabs, and later peoples. Similarly, in lands of modern colonization new food and industrial crops have been introduced over wide areas, and have displaced the former cover of vegetation.

¹ It is believed that the initial domestication of animals was usually for ceremonial or ritual purposes. The domesticated turkey of Mexico, for example, was a pet with ceremonial uses and was seldom eaten. See C. D. Forde, *op. cit.*

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The acclimatization of plants in lands of which the conditions of climate and soil were little known invariably led to many failures, and even to-day a pioneer farmer in the United States must venture warily unless he has learnt what climatic irregularities and other local conditions obtain. But the difficulties involved in exploiting new lands often evoked inventive effort. A graphic story is told¹ how, in the first half of the 19th century, Scottish settlers attempted to cultivate the prairies around Winnipeg. Almost unbelievable obstacles beset their enterprise. Myriads of migrant birds, clouds of grasshoppers, and Indian bands preyed upon their crops, which, moreover, were not at first suitably adapted to the local climate. But their efforts were eventually rewarded, since they discovered varieties of wheat suited to the short growing period. More recently, varieties of wheat have been produced which can be grown in the Canadian prairies in as little as a hundred or even ninety frost-free days. In this way Canadians have outwitted climate in some measure and have been able to extend the frontier of cultivation northwards into lands formerly dominated by forest. Similarly, in many parts of the world—in California, Spain, Italy, Russian Turkestan, and India—resort to irrigation has converted stretches of arid waste into highly productive land. But natural conditions have to be considered in effecting schemes of irrigation. First, the products of irrigated land must, as a rule, be able to compete successfully with those of unirrigated lands elsewhere; second, the indispensable water must be obtainable during the growing season; third, the quality of the soil and the slope and subsoil of the terrain must be suitable to irrigation.

In so far as plants and animals have particular biological requirements, the economic production of any area was restricted by nature. The climatic limits to the growth of plants are sometimes rigid, as in the

¹ Sir J. Russell, *The Farm and the Nation* (1933), pp. 97-102.

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case of the olive, and sometimes flexible, as in that of the mulberry tree. In any case it can be shown that a plant has both optimum and permissive limits to its growth. That is, it can be grown more successfully in certain areas within the greater area where its growth is possible. The truth of this is very evident to-day when, given the existence of a world market for many products, a great deal of specialization in geographically favoured areas occurs, notably in North America. This truth applies too, though in smaller degree, to the past.

The cultivation of the vine in western Europe and the silk industry, dependent on the mulberry tree, may serve to illustrate how certain industries were localized in the past. The vine was certainly cultivated, if only sporadically, well to the north of the present limit to its growth (Fig. 53). Introduced into southern France by Greek colonists and later extended by the Romans as far north as Alsace and the Moselle valley, the vine was grown around Bruges in the later Middle Ages and, as Domesday Book records, in many parts of southern England. Even so, a tendency to specialization in viticulture in certain favoured areas had already set in during the later Middle Ages. Thus the villagers in the district of Auxerre on the upper Yonne River in France "neither sowed nor reaped," but concentrated on growing vines and making wine. That they were able to do this is explained by geographical factors; the river afforded convenient and suitable transport for wine, which was liable to deteriorate if carried along ill-surfaced roads, and further, the river led downstream to the Paris market. Similar on a larger scale was the vineyard area behind Bordeaux. The river Garonne and the port of Bordeaux served in the shipment of wine, much of which was sent to England, the kings of which ruled Gascony for two centuries of the Middle Ages. Wheat had to be shipped to Bordeaux, since, through specializing on the vine, the local people

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did not produce sufficient grain for their own needs. In short, although the vine was widely grown in western Europe, where conditions of climate, soil, and slope allowed, the availability of water transport to good markets produced something like monoculture in certain places.

The story of the silk industry is similarly instructive.

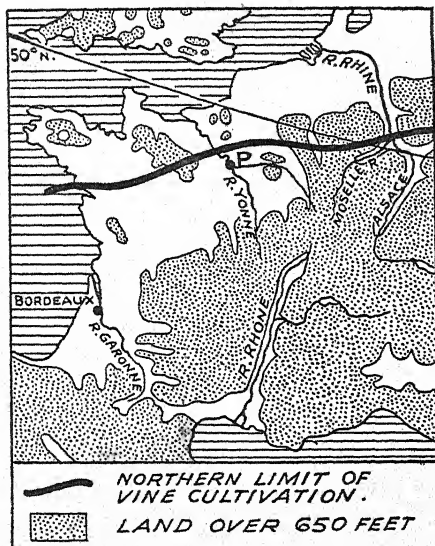


FIG. 53.—The present limit of viticulture in France.

The rearing of the silk moth was once the monopoly of central and southern China, where alone the highly skilled craft of silk-making was understood, and where the mulberry tree, under the conditions of monsoon climate, had two cycles of life a year and thus produced two supplies of fresh leaves. Now the mulberry tree is very tolerant of climate ; it will grow as far north as

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Norway and as far south as the Equator. It is tolerant, too, of soils, except that it will not grow in areas that are too clayey or marshy. Once the delicate processes involved in sericulture were learnt,¹ the making of silk could be attempted widely in Europe. Actually, the rearing of the silkworm has been restricted to parts of southern Europe—Greece, Italy, southern France, and Spain. Close study shows that climate was in fact a restrictive factor. It is necessary that the weather is free of frosts when first the moth appears in spring, and further, that a supply of fresh mulberry leaves is then ready. These conditions obtained broadly in the Mediterranean lands, except at high altitudes, but not farther north in continental Europe. Even if by artificial means the right temperature for the hatching of the moth is provided, the mulberry leaves appear too late in the north. When we recall, too, that in the Mediterranean lands only one crop of leaves a year can be got owing to the summer drought, it will be seen that they did not enjoy such natural advantages for this industry as did China and Japan, and to this day these countries, and above all Japan, retain the chief place in the production of raw silk.

¹ See below, Chapter IX., p. 190.

CHAPTER VIII

THE DAWN OF CIVILIZATION

"Ease is inimical to civilization. . . . The greater the ease of the environment, the weaker the stimulus towards civilization."

A. J. TOYNBEE, *A Study of History*, vol. ii. (1934).

"The districts where civilization began probably had at that time the most stimulating climate in the northern hemisphere."

C. E. P. BROOKS, *The Evolution of Climate* (1922).

It would be rash to believe that the beginnings of civilized ways of life have been fully revealed to us, but, thanks to archæological discoveries of quite recent times, we know a great deal about them—infinitely more than was known to the Græco-Roman world. It is clear that the land or lands which appear to have cradled civilization have been unequally explored by the archæologist. Even Egypt has not been thoroughly explored, and other lands, potentially of great importance, await fuller scientific excavation. In northern India spade work has only just begun, and is yielding remarkable results; and in Mesopotamia numerous prehistoric sites have not yet been laid bare. Asia Minor, northern Syria, Persia, Central Asia, and China are to a large extent unworked fields from which rich crops may yet be reaped. But if in a generation's time our view of the beginnings of civilization may need considerable revision, it is nevertheless true that reasonable hypotheses may already be made.

Let us be clear by what signs we distinguish "civiliza-

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tion" from the many cultures of a more primitive kind. Archæologists argue convincingly that Neolithic culture represents the first culture which may fitly be called "civilized." During the many millennia when peoples lived at a Palæolithic or Epi-palæolithic stage, they remained largely at the mercy of a physical environment which they were powerless to control. They won their livelihood by hunting, fishing, and food-collecting, and were ignorant of food-producing by means of agriculture and the domestication of animals. By the exercise of great creative effort Neolithic folk, during the period from 6000 to 3000 B.C., invented new ways of life. The economic basis of Neolithic civilization was food-production by cultivation and by pastoral farming. Its social expression was first the village, to which was added later the town. In craftsmanship many original advances were made: Neolithic folk learnt how to make wheel-turned pottery and kiln-fired bricks; how to spin wool, cotton, and flax, and to weave fabrics therefrom; how to work metals and to build on a monumental scale; how to write and to devise a calendar; how to trade and to organize states, and how to fashion works of art. The appearance of some or all of these evidences of civilized life at the Neolithic stage shows that people then possessed a new, if incomplete, power to adapt the natural environment.

Where did Neolithic civilization first appear? The answer is: Egypt and Lower Mesopotamia, to which in every probability north-west India must soon be added. Civilization appears then to have been born either near, or on the banks of, four great rivers—the Nile, the Euphrates, the Tigris, and the Indus. Which of the riverine civilizations can claim precedence in time is not yet clear, for the earliest finds in Lower Mesopotamia and Egypt may be roughly contemporary. In fact, some experts hold that civilization probably arose spontaneously in these three regions. Was there

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a region of yet earlier civilization from which these received cultural stimuli, as a result of the movements of peoples, or of the flow of ideas and practices? Those who believe that such was the case look towards northern Syria and eastern Asia Minor as likely centres. On the other hand, there is no valid reason for believing that human inventiveness could not appear independently and spontaneously in several similar areas. The answer to our problem turns on the part which "diffusion" has played in prehistory. Must we assume that there was only one source of civilization whence the light was diffused elsewhere? There are many objections to this extreme diffusionist view—notably the fact that many civilized practices, for example writing and agriculture, developed in Central America long before it was brought into relation with the Old World.

We need not pause to examine further the diffusionist problem. What is more important to our purpose is that the first traces of civilization appeared in a few regions of distinctive physical endowment at an unascertainable date, about and probably earlier than 5000 B.C. It is our task to define clearly the geographical settings of this momentous human revolution, and then to inquire how far their nature may explain why civilization arose there when it did.

Before we examine particularly the riverine lands of Egypt, Lower Mesopotamia, and north-west India, we must note broadly the great tract of country within which the lower courses of these rivers lie. It is conveniently described as the Afrasian steppe-desert belt, itself part of a more extensive arid belt which extends across the Old World from the Atlantic to northern China (Figs. 14 and 54). The Afrasian steppe-desert belt consists structurally of a number of rigid, tilted crust-blocks, alike in north Africa, in the Arabian peninsula, and in Iran (Persia). These present generally plateau levels, except where a few major depressions and young fold mountains occur. The chief depressions

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are the alluvial flats through which pass the lower courses of the Nile, the Euphrates, the Tigris, and the Indus rivers. The chief mountains are those which border the Iranian plateau on the west and the east, the Lebanons in Syria, and the Atlas ranges in north

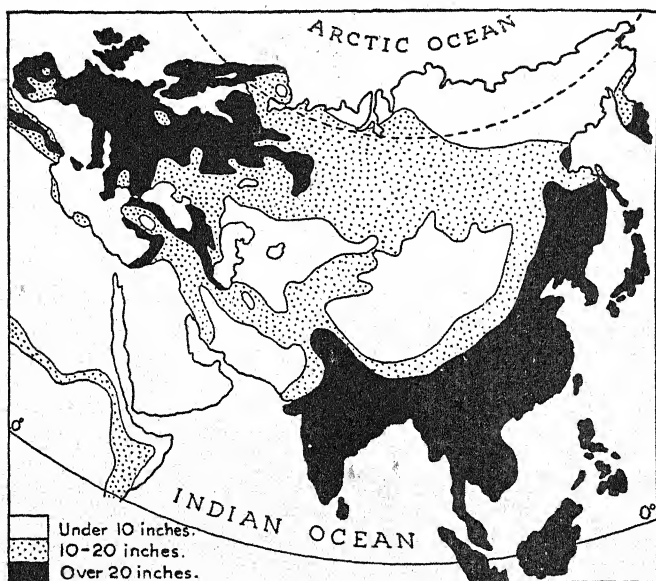


FIG. 54.—A generalized rainfall map of the Old World.

(The Afsasian steppe-desert belt coincides with the area which receives less than 10 inches of rain annually.)

Africa. Climatically the whole belt, including the riverine lands, is characterized to-day by an almost complete lack of rain, by hot summers, and by mild winters. The riverine lands themselves were physically analogous; each consisted of an alluvial plain, bordered by desert or mountains or both, and open on one side to the sea. In each case, too, and this was clearly

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a factor of first-rate importance, the great river or rivers carried into the region from wetter areas in their upper basins copious supplies of water at one season of the year.

We have already discussed the question of past climates in the Afrasian steppe ¹ (see Fig. 15). We argued that, for many millennia prior to the final disappearance of the Scandinavian glaciers about the year 6000 B.C., the Afrasian steppe-desert belt, especially on its northern side, enjoyed a moderate rainfall all through the year, and presented as a result a vegetation cover of grass together with some trees. After c. 6000 B.C., the climatic belts shifted north to their present position, and the grasslands suffered gradual desiccation under climatic conditions similar to those of to-day. Hence the period when civilization arose and developed in the riverine lands falls almost entirely within the period of present climate, and it is significant that the earliest finds there may coincide roughly with the transition from raininess to drought. Just how close this coincidence was we cannot be too sure, since we are dealing with dates of a very loose kind, the one based on geological, the other on archæological evidence. As we shall see, the earliest Neolithic sites in Egypt suggest that the rainy period was not quite over. But, as we argued above,² there is every reason to believe that the first effective colonization of the riverine lands was made at a time when the Afrasian grasslands were becoming too dry to sustain life for all the hunting peoples who dwelt there. There is a further climatic consideration to which we shall refer later on, namely that, despite the onset of dry conditions, there seems to have been a slightly higher rainfall during the last few millennia B.C. than obtains to-day. For the moment we shall examine the past geography of the riverine lands.

But for its numerous historic and prehistoric sites and

¹ See above, Chapter III., pp. 52-54.

² See above, Chapter III., pp. 56-57.

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all that these have revealed, Lower Mesopotamia in its present condition has little to suggest the outstanding part which it has played in world history. This area corresponds roughly with the present kingdom of Iraq, which is notable to-day for its resources of petroleum, not for its agriculture. Lower Mesopotamia

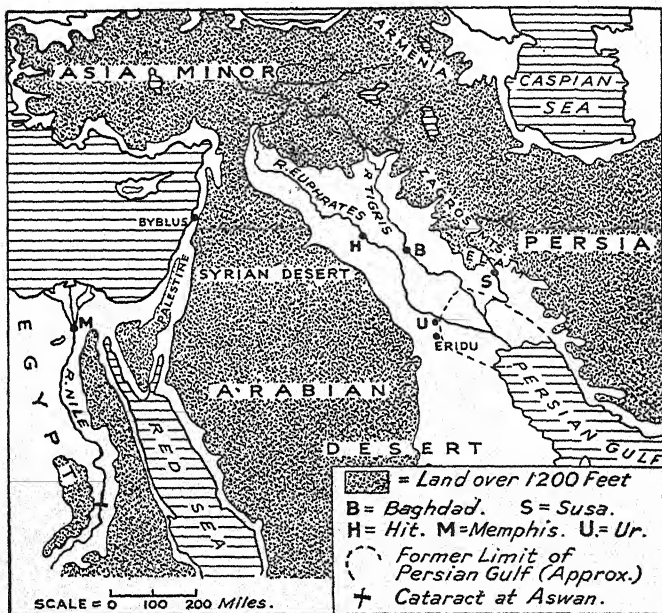


FIG. 55.—Egypt and Mesopotamia.

forms the southern part of what archæologists have called "the Fertile Crescent," namely, the lowland which extends from Palestine to the Persian Gulf on the flank of the deserts of Arabia (Fig. 55). To-day great areas of Lower Mesopotamia, as a result in part of centuries of neglect by its Turkish rulers, are either treeless, waterless, and barren wastes or undrained

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marshes. But an accumulation of evidence both literary and archæological testifies to its former productivity and to the amazingly precocious civilization which it sustained during a period of several millennia before Christ.

Lower Mesopotamia is a broad, alluvial plain, of about the area of Great Britain, which lies between and eastwards of the lower courses of the Euphrates and Tigris rivers. Northwards it extends as far as Beled on the Tigris and Hit on the Euphrates, where beds of limestone outcrop in the river bed and obstruct navigation. Structurally, Lower Mesopotamia is a "sunk-land": it was formed parallel to the faulted edge of the Arabian crust-block, when the Zagros mountains were folded in Tertiary times. The trough then created was subsequently filled up by masses of detritus carried down and deposited by the Tigris and Euphrates, and by spring torrents which descended from the Zagros mountains of western Persia; even wind-borne sands from the Arabian desert added also their quota. Further, alluvium was deposited at the outlets of the Tigris and Euphrates, with the result that a considerable area of marshy land was built up at the expense of the Persian Gulf. Since the dawn of civilization the head of this Gulf has extended inland perhaps as much as 150 miles (Fig. 55). Some of the earliest prehistoric sites, notably Ur and Eridu, which now stand far inland, originally stood on the margin of the Persian Gulf. Thus the land was built up from transported rock waste of neighbouring lands; similarly, the early peoples of Mesopotamia included elements which intruded chiefly from the desert, but also from the mountains and the sea.

The Euphrates and Tigris collect a great volume of water from their upper basin in the Armenian mountains, where melted snow in spring supplements the run-off of rain. The Tigris receives, too, additional waters from the mountains of western Persia. Lower Mesopotamia

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is almost rainless ; Baghdad, for example, has nineteen rainy days a year, and a variable rainfall, mainly in winter, which averages about nine inches annually. The spring floods were therefore indispensable to cultivation in Lower Mesopotamia. These could be very violent and even catastrophic, and it is more than probable that Noah's flood, described in Genesis, actually occurred in Sumer, the lowest part of Mesopotamia. The Tigris-Euphrates floods occur at a different time from those of the Nile and necessitate a different form of irrigation. In Egypt the floods begin to rise in June, rise rapidly in July and August, and remain high during September, and "basin irrigation," so called, was necessary. The floods were allowed to spread over the alluvial plain and drain back to the Nile ; then seeds could be sown—even without tillage—and the soil remained sufficiently moist during the growing period. In Lower Mesopotamia, on the other hand, the floods occurred in March, April, and May, and were followed by a rainless, scorching summer. Crops could not be grown after the floods unless resort was had to irrigation ; hence something similar, of a rudimentary kind, to the perennial irrigation which is practised to-day in Egypt and Sindh, had to be undertaken. Such an expedient involved the need of storing and distributing water, and it thus called for well organized efforts and technical skill. But if these works were undertaken, even in small areas of the plain, two crops a year could be grown and good yields won, for the winters were mild and almost frostless and the best of the alluvial soils were light calcareous loams, rich in plant foods. Moreover, the silt-laden waters of the Euphrates and the Tigris, especially those of the latter, helped to renew the fertility of the soil, although, when in flood, they deposited coarser materials than the fine-grained silt of the lower Nile.

As waterways the Euphrates and Tigris had only limited value. If the rocky bars across these rivers,

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respectively at Hit and Beled, obstructed navigation, they served at least to impound water, and these natural reservoirs were improved and utilized in very early times. Both rivers could be navigated below these points, but they were difficult for up-stream traffic, since their currents, especially that of the Tigris, were strong, and their banks were unfit for towage. The date palm was indigenous to Mesopotamia, and emmer—a variety of wild wheat which, together with barley, has been found there growing wild—was certainly cultivated as early as the fifth millennium B.C. Stone, timber, and bitumen, which were lacking in the alluvial plain, were obtained from areas near by. From Elam, the foothill area to the east of Sumer where the earliest sites have been found, timber and stone were carried into the plain, and bitumen was brought down the Euphrates from Hit. Other products, too, such as wine and oil, as well as minerals, especially copper, and spices, were brought there by traders. Some of the early settlements, such as Ur and Erech, stood on the desert margin of Sumer and may well have functioned as desert "ports." The beast of burden which served the earliest inhabitants was the ass; the one-humped camel and the horse were not introduced into Mesopotamia until relatively late in the prehistoric period.

Throughout its long recorded history Egypt consisted of the alluvial lands of the valley and delta of the Nile below the first cataract of Aswân. Although this area was continually divided into two or more kingdoms or provinces, it consisted of two permanent natural units. Upper Egypt is the long, narrow valley section, which varies in breadth from a maximum of twelve miles to a minimum, above Thebes, of less than two miles. Lower Egypt is the triangle of delta, which was built at the expense of the sea by river-borne silt, and is fringed by lagoons and sand dunes on its seaward side. Upper Egypt, the flood plain of the lower Nile,

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is not strictly speaking a rift valley, as is the Jordan valley ; nevertheless it lies deeply sunken between high cliffs of limestone or sandstone on either side (Fig. 56). The lower Nile was navigable as far as Aswân, where masses of granite occur in the river bed. Boats could move down-stream on the river's usually gentle current, and up-stream navigation was helped by the northerly winds (the Etesian winds of the Greeks) which are prevalent mainly in summer. Deserts, in which many

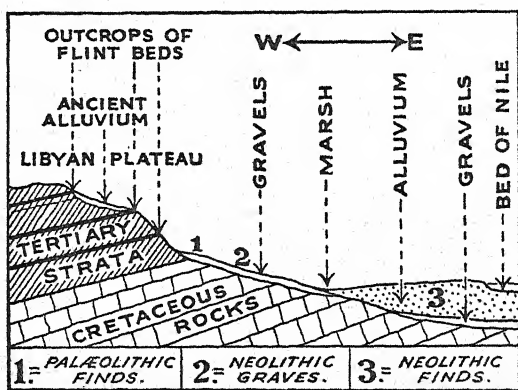


FIG. 56.—Half-section of the lower Nile valley above the delta.

scattered oases occurred, bordered the alluvial plain on both sides, and the high desert edge was broken by numerous "wadis," which are to-day waterless. On its eastern side, high desert, known as the Arabian Desert, itself a fractured part of the great Arabian crust-block, stretches to the Red Sea, to which it presents a rocky and arid coast, scorched by the summer sun. On its western side, at a lower elevation, but no less arid, extends the Libyan Desert, through which, however, two routes are defined by nature ; one lies behind the low, sandy, inhospitable coast, where there

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is a slight rainfall ; the other, far inland, is marked by a zone of oases which permit travel by stages. The deserts insulated Egypt, but were in no sense an invulnerable shield—the nomadic peoples who dwelt there were tempted continually to intrude into the settled agricultural plain of Egypt. The eastern desert, too, offered routes to the Red Sea ports and towards Palestine and Syria. The Mediterranean itself afforded means of communication with Crete and Syria, at least as early as the mid-fourth millennium B.C. Finally, in the south, where the Nile waterway ceased, a tract of desert separated Egypt from Nubia, an area of grass-land and woodland, which remained a cultural back-water.

Practically rainless, except for a small fall in the Nile delta, Egypt depended for its habitability, from Neolithic times onwards, on the summer floods of the Nile. The cause of these floods is the heavy monsoon rains of the Abyssinian highlands, whence in summer the Blue Nile and the Atbara rivers bring down copious waters. In Egypt, as in Lower Mesopotamia, the floods annually renewed the fertility of the soil by the deposit of silt, so that the land could be cropped continually, even twice a year, without resort to the practice of fallowing which was necessary in Europe. But if the regular inundations of the Nile made possible the continuity of settled life in Egypt, their variations in volume from year to year had serious results. An excessive rise inundated villages and towns and caused much devastation, and a deficiency of flood water spelt lean times or even famine. At all times the distribution of the flood waters was a task of first-rate importance, and its proper regulation called for the services of a strong centralized state.

The rich black soils of Egypt promised high yields. The proverbial corn of Egypt, as early as pre-dynastic times,¹ was barley, millet, and emmer wheat—for bread

¹ That is, before c. 3400 B.C.

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wheat was introduced only in Roman times. The flax plant was grown very early; the papyrus reed and probably the date palm, were indigenous. From papyrus not only Egyptian paper but also the earliest boats were made. The alluvial plain lacked timber, since after the drying up of the Afrasian steppe-desert belt, useful timber trees disappeared; so, too, it lacked metals, especially copper and iron. Many of the crops which appear in the course of Egyptian history, such as cotton and sugar cane, were introduced there relatively late, but the olive grew on the western margin of the delta as early as about 3000 B.C.

Finally, the discoveries of the last twenty years have revealed a third primary centre of civilization, namely, the riverine plain of the Indus in Punjab and Sindh, where the physical conditions were strikingly similar to those of Egypt and Lower Mesopotamia. The alluvial plain of the Indus was flooded and fertilized in early summer by the waters of the Indus, and, it is believed, by those of a great sister river, which were fed by the melted snows of the Himalayas. Already in the third millennium B.C., as archæological evidence convincingly shows, people lived in constant dread of the Indus, which has always been notorious for its violent floods and its continual changes of course in the low, alluvial plain. The floods were perhaps not so severe when the first towns arose in the valley, for the sister river to the Indus, the Mihran, carried the greater volume of water along a course parallel to, and eastwards of, the Indus¹ (Fig. 57). To the east of the alluvial lands, the desert of Thar, and to the west, mountain ranges and high steppe-lands emphasized the geographical individuality of the riverine plain.

In order to complete our sketch of the geographical background to the early civilizations nurtured in the riverine lands, it is necessary to try and picture them, not as they appear to-day, but in the natural state

¹ See above, Chapter III., p. 62.

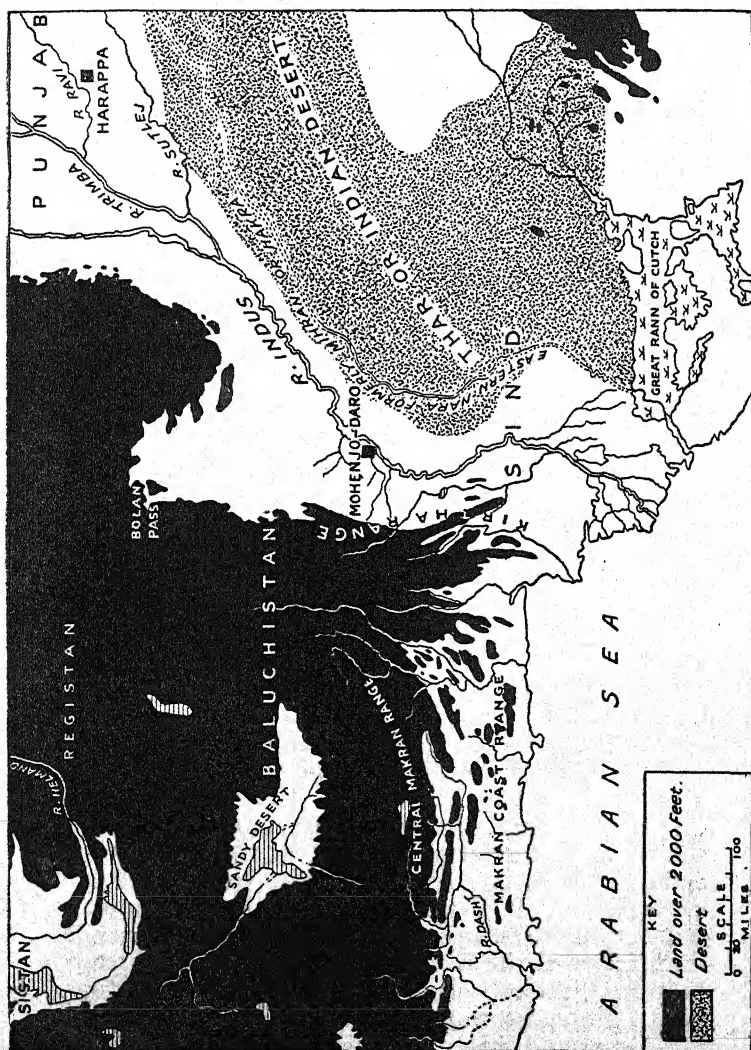


FIG. 57.—The Indus valley and its borderlands.

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in which the first settlers found them. Herodotus' familiar dictum "Egypt is the gift of the Nile," although it has obvious truth, can be very misleading, for the Egypt of history was no less the gift of man. To-day, as already in the Roman period, Egypt presents an essentially "humanized" landscape, in that it had been drastically modified by long periods of human effort. Similarly, the fertility of the Fertile Crescent was the result of strenuous "colonial" activity. The riverine lands, as they appeared to the first intruders from the neighbouring deserts or highlands, were subject to both the devastations of flood and the limitations of drought. There were wide areas, especially in the deltas, of dreary and perhaps pestilential marsh; wide areas covered by thick, high reeds; and there were vestiges at least of the jungle vegetation, together with its animal denizens, which had flourished during the rainy period prior to c. 6000 B.C.

There is a great deal of evidence to suggest that during the last five millennia before Christ the rainfall of the riverine lands, though less than that of the preceding pluvial period, was rather greater than it is to-day. The fact that Egypt and its bordering deserts were able to support a fauna and flora which must now be sought in lower latitudes, *e.g.* in upper Nubia, suggests that the rainfall was higher and the herbage more plentiful than they are to-day. The first settlers of Egypt found there not only hippopotami, crocodiles, wild boars, and great numbers of wild fowl of various kinds, but also, in the neighbouring oases, elephants and gazelles. In Dynastic times, that is, after c. 3400 B.C., there existed a wide variety of wild animals which included the lion, the antelope (its chief prey), the gazelle, the ostrich, the wild ass, and the Barbary sheep. The subsequent disappearance of these animals from Egypt and the north African deserts suggests the continued drying up of the oases, although human

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agency played some part.¹ Similarly, early Egypt boasted more tree species than it does to-day—the sycamore-fig, two varieties of palm, the acacia, the sunt, and the tamarisk; moreover, in the earliest stages of settlement, as finds of tree roots and charcoal at Faiyum and Badari indicate, some useful timber trees and brushwood grew on the now arid margins of the alluvial lands. Further, experts have shown that the water level of Lake Mœris in the Faiyum depression, though falling, stood much higher during the millennia 6000–3000 B.C. than it does to-day. When we consider also striking evidence from Baluchistan and the Indus valley, it is clear that the higher rainfall was not a purely local condition. Numerous large and flourishing villages from which agriculture was practised, as well as immense dams, have been found in southern Baluchistan, in country which is now so dry that it can support only nomadic peoples. It has been plausibly argued that the higher rainfall in Baluchistan and the Indus plain, which was not very plentiful or too well distributed throughout the year, was due to the fact that the monsoons were then effective over a wider area. Such an explanation is eminently reasonable, since other similar marginal shifts of the monsoons seem to have occurred. On the other hand, the contemporary raininess in the African steppe-desert belt must be attributed to Atlantic rainstorms which would have reached Baluchistan and to a lesser extent north-west India.

As a result of this slight raininess, which was insufficient to mask the fact that climate had become much drier than hitherto and to make irrigation unnecessary, the riverine lands possessed a rich flora and fauna at the dawn of civilization. This was in part an aid, in part an obstacle, to the pioneer settlers, for they had to combat wild animals, to clear the land of reeds and jungle,

¹ Thus it is suggested that the introduction of camels into North Africa by the Arabs drove the lion southwards by restricting the pasture available for the antelope and other animals on which the lion preyed.

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and to drain the marshes. We may sum up the environmental conditions of that time by suggesting that nature gave and withheld her gifts with equal restraint. If Egypt, the Indus valley, and Lower Mesopotamia—where some would place the Garden of Eden—were regions of superfluity in respect of food supplies, this was not a natural gift but the result of well-directed and concerted efforts to adapt and exploit the natural endowment. Let us glance very rapidly at the archaeological record to see by what stages, and with what skill and creativeness, the riverine lands were mastered and utilized. Let us have in mind, too, how very important in human history were the events then enacted in those lands.¹

The earliest Neolithic finds have been made in Egypt and in Elam, which borders Lower Mesopotamia, although there is reason to believe that discoveries of similar date may be made in the Indus valley. Already, *c.* 5000 B.C., the inhabitants of the village of Susa in Elam made wheel-turned pottery and linen; they had copper axes and polished flint implements; and they were probably acquainted with agriculture, although they depended mainly on hunting. Many mounds or "tells," which have been built up from the accumulated remains of successive villages of mud-and-reed huts and stand out to-day above the level of the plain, mark the sites of successive Neolithic villages such as Susa. Thus already in the 5th millennium B.C. the first cultural revolution had taken place in Lower Mesopotamia, and also, as we shall see, in Egypt. It was characterized by the appearance of village life, agriculture, the smelting and working of copper, and the manufacture of textiles and pottery. If we move forward rapidly and survey the scene about 3000 B.C., great advances in technical skill, and in social and economic organization then appear, and the second revolution has occurred. Instead of small self-sufficient villages

¹ See above, pp. 87-88.

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of folk engaged chiefly in hunting, we find cities of considerable area, the inhabitants of which were engaged not only in agriculture but also in specialized crafts and in external trade. Monumental buildings, chiefly temples, were built of kiln-fired bricks; irrigation was practised by the building of dams and the cutting of canals; and silver, lead, gold, and lapis lazuli came into common use. The Sumerians, too, had invented a solar calendar, and pictographic writing on clay tablets. Moreover, they possessed a number of domesticated animals—cattle, sheep, and asses—although the actual domestication of these may have been achieved by neighbouring hillmen or steppe-dwellers rather than by the plainsmen themselves. It is clear that Sumerian civilization presupposes external trade, or if not that, at least the carriage of products from other, often distant, lands—copper from Oman, shells from the Persian Gulf, lapis lazuli from Afghanistan; silver and lead perhaps from the Taurus mountains of south-east Asia Minor; and timber from the Zagros mountains. Similarly, certain products of Sumerian craftsmanship are known to have reached cities in the Indus valley. Finally, we may note that the cultural achievements of the peoples of Lower Mesopotamia were made under a city-state organization. A territorial state, coextensive with the Fertile Crescent, was created by Sargon c. 2500 B.C., a task more effectively accomplished by Hammurabi some five hundred years later.

In Egypt the earliest known Neolithic settlements, which may be dated some centuries earlier than 5000 B.C., stood on the northern rim of Lake Moeris, which lies in the Faiyum depression south-westwards of Cairo. Great interest attaches to the recent discoveries at Faiyum:

“In the Faiyum Neolithic granaries, of which we found 117, we appear to have the earliest evidence

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for corn growing yet known, though from what quarter they originally obtained their knowledge and the seed-grain of wheat and barley remains obscure." ¹

Some centuries later there are signs of a similar civilization in the Badari area, which extends from the desert spurs across the alluvial plain to the Nile. The Badari folk, in whom a negroid strain has been detected, were more or less settled—they grew barley and emmer wheat; kept cattle, goats, and sheep; wove linen; used copper, unavailable locally, and Red Sea shells. It is significant that their settlements stood near the wadis which flowed into the alluvial plain.² Much later, about 3500 B.C., the valley and delta lands of Egypt were united into a single kingdom, and the capital was fixed at Memphis, just above the head of the delta where passage across the Nile was facilitated (Fig. 55). Already, under King Menes (c. 3400 B.C.), a Nilometre was used to measure the height of the Nile floods, of which records were kept. It is clear that in Egypt, as in Lower Mesopotamia, a flourishing agriculture supported a dense population, permitted the accumulation of capital, specialization in many crafts and professions, as well as an active foreign trade. Limestone and granite were quarried locally and transported along the Nile; either copper or turquoise—it is not clear which—was brought from mines in the Sinai peninsula; cypress, pine, and juniper wood, together with resin from the Lebanon mountains, reached Egypt by sea from Byblos in Syria; and gold and spices were brought from Nubia.

In the Indus valley, the prehistory of which is still but little known, an urban civilization, comparable

¹ Miss G. Caton-Thompson and Miss E. W. Gardner, "Recent Work on the Problems of Lake Mœris," *The Geographical Journal*, vol. lxxiii. (1929), pp. 40-41.

² It is not yet clear whether they cultivated the alluvial plains, for the alluvium may cover up evidences of occupation.

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with that of Lower Mesopotamia and Egypt, has been revealed recently at Mohenjo-Daro and Harappa (Fig. 57). The finds in these towns are dated about 2500 B.C., but it is known that earlier settlements existed there. Mohenjo-Daro was a large town, with an area of one square mile, that is, twice the area of Roman London; its streets conformed to a plan; two-storey houses, including workshops and shops, were built of kiln-fired bricks and provided with sewers; many specialized crafts existed, and statuary of great artistic excellence was fashioned. Whether or not they were indigenous to the region, wheat, barley, dates, and a coarse variety of cotton were produced there, and the domesticated animals included pigs, sheep, cattle, humped bulls, and water buffaloes. The riverine lands of Sindh and Punjab certainly formed a culture province, but it is not known whether they were ever organized as a single state. Goods reached these lands from areas outside; deodara cedarwood from the Himalayas, dried fish from the sea coast, and many minerals and precious stones from places much farther afield. Moreover, certain manufactured articles from the Indus towns, especially square seals, found their way into the villages of Baluchistan, and even to the cities of Sumeria.

We cannot discuss the problem how far the civilizations of Lower Mesopotamia, Egypt, and the Indus valley were independent local growths. It is believed that these urban civilizations were not transplanted from one centre to another, but were rather organic growths rooted in their respective soils. That is not to say that they did not show many similar cultural traits and did not hold intercourse with each other, notwithstanding the great distances which separated them, whether by land or by sea.

In conclusion, let us return to our second question: how far does the physical nature of the riverine lands explain why civilization arose there when it did?

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Let us make clear at once that we do not attempt to explain the genesis of civilization as the inevitable outcome of the conditions of physical environment. A. J. Toynbee called attention to other riverine lands, allegedly analogous, in which no contemporary civilization emerged, and although the instances which he adduced were not so analogous geographically as he implied, he had no difficulty in disposing of this explanation. Further, he argued that it was the sheer difficulty of the environment in the riverine lands which challenged its first settlers and evoked there a remarkable response. Stimulated—not daunted—by drought, flood, swamp, and wild animals, the first settlers, by their own creativeness and enterprise, conquered their difficult environment and introduced there the arts of civilized life. In short, according to A. J. Toynbee, “the greater the ease of the environment, the weaker the stimulus towards civilization.”

This view is no less extreme than that of the environmentalists, and is in many ways unsatisfying; nor does it explain why in some areas the physical challenge was met and in others ignored. It is clear that every terrain is a different terrain to every folk which it supports, but the extent to which, and the way in which, peoples adapt and exploit their physical environment is conditioned and limited by physical facts. If, as seems probable, men first settled the alluvial lands as immigrants from the drying grasslands of Afrasia, they were offered there natural advantages as well as drawbacks. Drought, flood, and marsh, it is true, were obstacles in their path. On the other hand, the rich alluvial soils, the indispensable river floods, the long growing period, the river route-way, and the indigenous plants and fauna—all these could be turned to good use. It may be open to discussion whether, as C. E. P. Brooks suggested, the riverine lands enjoyed the most stimulating climate of the northern hemisphere at the dawn of civilization, although we have

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shown that they were not so arid as they are to-day. Further, it may well be significant that the riverine lands were surrounded in each case by physically contrasting regions—desert, mountains, or sea—whence came peoples familiar with other ways of life and other products and ideas. In so far as the contact and intercourse of peoples thus differentiated were stimuli to creative thought and action, the folk of the riverine lands were in this respect geographically well favoured. It may well be that their civilization represents not only the product of their own creativeness but also the pooling of the inventions and experience of neighbouring peoples.

CHAPTER IX

EUROPE AND CHINA

"We alone possess two eyes, the Europeans are one-eyed, and all the other inhabitants of the earth are blind."

Chinese Proverb.

EVEN to-day, when distance has been almost annihilated by new means of communication and transport, and the separateness of East and West no longer exists, we tend to think of Europe and China, notwithstanding their political, linguistic, and other divisions, as two homelands of distinct and unrelated cultural traditions. Until recent times Europe and China formed separate worlds and, like Kipling's cat, each walked by itself. Largely independent in their development and largely aloof from each other, Europe and China derived their civilizations from different sources at about the same time. Whereas the former owes much to the Ægean world and in particular to ancient Greece, the latter evolved its earliest civilization on the bordering lands of the Hoang-ho or Yellow River during the last three millennia B.C. Whereas Europe became Christian, China adopted Indian Buddhism together with the ethical ideas of its native Confucius. The historically recent impact of "Western Civilization" on China, which reached it directly from Europe and indirectly from the United States and from Japan, has not yet drastically modified Chinese ways of life and thought.

It is a nice question, which archæological research may ultimately answer, to what extent, in their earliest

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stages, Chinese and European civilizations received practices and ideas from a common source, notably from the lands of earliest civilization in western Asia and Egypt.¹ It is believed that the knowledge of agriculture, of the potter's art, and of the use of copper reached northern China, by way of Central Asia, either from Russian Turkestan or from Persia, as early as about 2500 or 3000 B.C. If this is so, we may say that the initial, or Neolithic, civilization of China came indirectly from the ancient centres in western Asia—from either the lower Indus lands or from lower Mesopotamia, areas from which cultural currents equally passed into Europe. Subsequently to this remote phase, however, Chinese civilization seems to have developed in almost complete independence of influences from the West.

Chinese civilization was born in the valleys and plateaux of north China through which the great river Hoang-ho flows in a steeply-sided valley. North China is bordered northwards by the steppes and deserts of Gobi and by the forests of southern Manchuria; on the east by the sea, and on the west and south by the mountain ranges of Nan-Shan and Tsin-Ling-Shan respectively (Fig. 58). Thick deposits of loess, together with river alluvium, cover a great part of this area. The loess of north China is a fine-grained silt which was carried there by westerly winds from the neighbouring deserts. It gave rise to "Yellow Earth," rich in plant foods, easy to work, and free of dense vegetation. Since the annual rainfall of north China averages less than thirty inches and, moreover, is very variable from year to year, sufficient moisture for cultivation was not always available, and recurrent drought, together with river floods, resulted in continual and disastrous famines. The earliest settlers in north China, those of the Neolithic period, occupied areas where rainfall is now as low as ten inches a year. They already

¹ See above, Chapter VIII.

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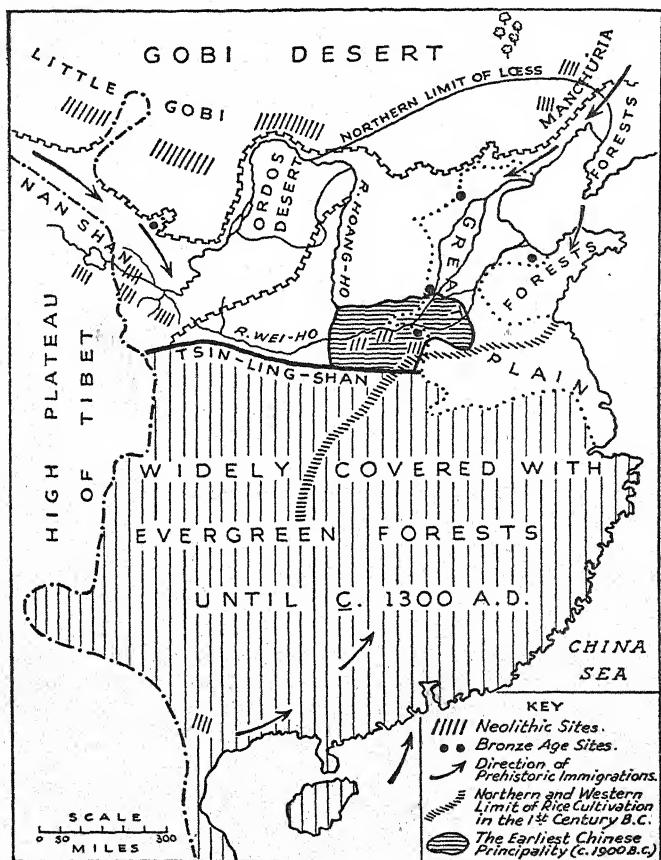


FIG. 58.—A composite historical map of China.

worked the soil with a hoe and maintained its fertility by simple irrigation methods. It is significant geographically that both Neolithic and, subsequently, Bronze Age, settlements avoided the Great Plain

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through which, in ever changing channels, the Hoang-ho made its way to the sea. The lower Hoang-ho—"China's Sorrow," the river is called—is subject to violent floods in spring, and great organized efforts were necessary, not only to embank its waters but also to convert to agricultural uses the jungles and swamps which originally covered much of the Great Plain.

The earliest known Chinese principality, which formed the nucleus around which Chinese civilization spread, extended across the Hoang-ho valley into the western margin of the Great Plain (Fig. 58). The geographical heartland of China under the Han dynasty (206 B.C. to A.D. 220) was the loess-floored valley of the Wei-ho, a tributary of the Hoang-ho, along which passed the route westwards to the Tarim Basin (Chinese Turkestan). This was the base from which the Chinese conquered and civilized the peoples of central and southern China, which were well wooded lands, climatically well fitted for cultivation. In this region, rice, which is believed to have been native there, was the chief grain crop; in north China, in contrast, millet and wheat were the staple crops (Fig. 58). Finally, it was the emperors of the Han dynasty who carried Chinese civilization southwards across the Yangtse River to the coastlands and to the mountainous border of Annam.

In the 1st century A.D. two highly developed and distinct civilizations were established on the western and eastern margins of Eurasia (Fig. 59). In the west, flanked by the then impassable Atlantic, stood the Roman Empire, the axis of which was the Mediterranean "lake." In the east, beyond which stretched the vast Pacific, stood the Chinese states, which, however divided politically, shared a common culture. Both the Roman Empire and China occupied warm temperate latitudes, but whereas the former extended into cool temperate lands, the latter stretched into the tropics; both, too, were extended longitudinally. Actually, the western extension of China, between

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long. 100° and 70° E., represented conquered lands in the steppe of Central Asia, where the nomadic way of life prevailed. Further, the two empires were equally populous: a census of A.D. 156 estimated the Chinese population at over fifty millions, which is the figure estimated by modern scholars for the population of the Roman Empire.¹ The simplified rainfall map (Fig. 54) suggests that essentially Europe and China

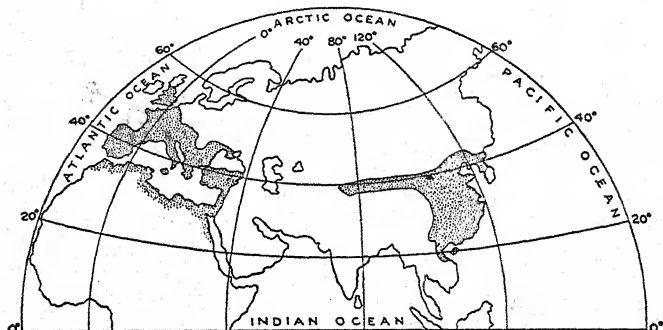


FIG. 59.—The Roman Empire and China in the 1st century A.D.

stood at the terminals of a steppe-desert belt where rainfall was sufficient for cultivation; hence they were geographically equipped to support relatively dense sedentary populations. But it should be remembered that in north China, as also in parts of the Roman Empire, resort to irrigation was often desirable or even necessary for the purposes of agriculture.

Why did Europe and China develop along independent lines, and why were they so largely insulated from each other? Certainly geographical conditions answer this question. Sheer distance itself was an obstacle to their interrelations, the more so when we recall the

¹ So also the populations of China and Europe to-day are roughly equal: each is very roughly about a quarter of the total population of the world.

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means of transport formerly available—the caravan by land and the sailing ship by sea. Moreover, a broad continental area of mountains, steppe, and desert, which was bordered northwards by vast forests and marshy tracts, lay interposed in Central Asia between Europe and China, which had well-watered plains, plateaux, and river valleys, occupied by sedentary agriculturalists (Fig. 14). Although the landward limits of Europe and China at different periods of history are somewhat difficult to discover, there is no doubt that the essential heartlands of Europe and China were those areas which supported an agricultural way of life in sharp contrast to the nomadism of the Asiatic steppes.

A glance at a world map or a globe indicates that, theoretically at least, China could be reached from Europe by four routes. The two all-sea routes, one by way of the Pacific, and the other by way of the Cape of Good Hope, were actually the last to be opened up. The third route, which seems to have been the first used, was overland across Central Asia. Finally, China might be reached from the eastern shores of the Mediterranean, mainly by sea, if use were made of either the Red Sea or the Persian Gulf.

The overland route involved long passages across the high steppes and deserts which extend from south Russia and Persia as far as the borders of north China. The steppes and deserts of Central Asia—for example, those of Gobi, Djungaria, the Tarim Basin, and Western Turkestan—are high plateaux, girt around for the most part by lofty mountain chains (Fig. 60). They suffer not only freezing and blizzards in winter but also great ranges of temperature between winter and summer, and even between day and night. The rainfall is scanty, usually less than ten inches a year, and in some parts it is so little that virtually lifeless deserts occur; such, for example, is the dreaded Taklamakan desert which lies within the Tarim Basin, a great undulating area of arid yet intrinsically fertile "sands" (Fig. 61). Passage

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of these open plateaux was facilitated by means of horse-drawn caravans; for the horse, we recall, was native to the Asiatic steppes. Not only had caravans to cross wide spaces alternately scorched and frozen, they had also to traverse the mountain obstacles which lay across their path. From the high, dissected plateau of Pamir, mountain chains diverge in almost all directions—the Hindu Kush, the Himalayas, the Altyn Tagh, the Kunlun, the Tien-Shan, and the Altai, to name the chief (Fig. 60). At the foot of mountains, where they adjoin the plateaux, towns such as Samarkand, Kashgar, and Khotan arose as convenient halts on the overland routes¹ (Fig. 61). But it is necessary to emphasize that the physical obstacles to passage across Central Asia were insufficient to deter merchants, if opportunities for trade existed; in fact—as we have argued elsewhere—this vast area facilitated transportation. The chief obstacle to the use of this route was human rather than physical. The political divisions and rivalries of the nomad peoples of Central Asia continually endangered the route, and even to-day political conditions make overland travel difficult if not dangerous.

More important historically than the overland route were those which utilized the Red Sea and the Persian Gulf. Fig. 62 shows what has been aptly called the "waist" of Asia. The Red Sea and the Persian Gulf wash the western and eastern shores respectively of the rigid crust-block which forms the Arabian plateau and penetrate northwards towards the Mediterranean from the Arabian Sea. Only a narrow isthmus in northern Egypt and a broader one in Mesopotamia and Syria prevent direct intercourse by sea between Europe and India, the half-way house to China.

The existence of these two water arms is due to episodes of geological history. The Red Sea constitutes a "fault zone": it was formed as a result of the shatter-

¹ See above, Chapter V., pp. 107-8.

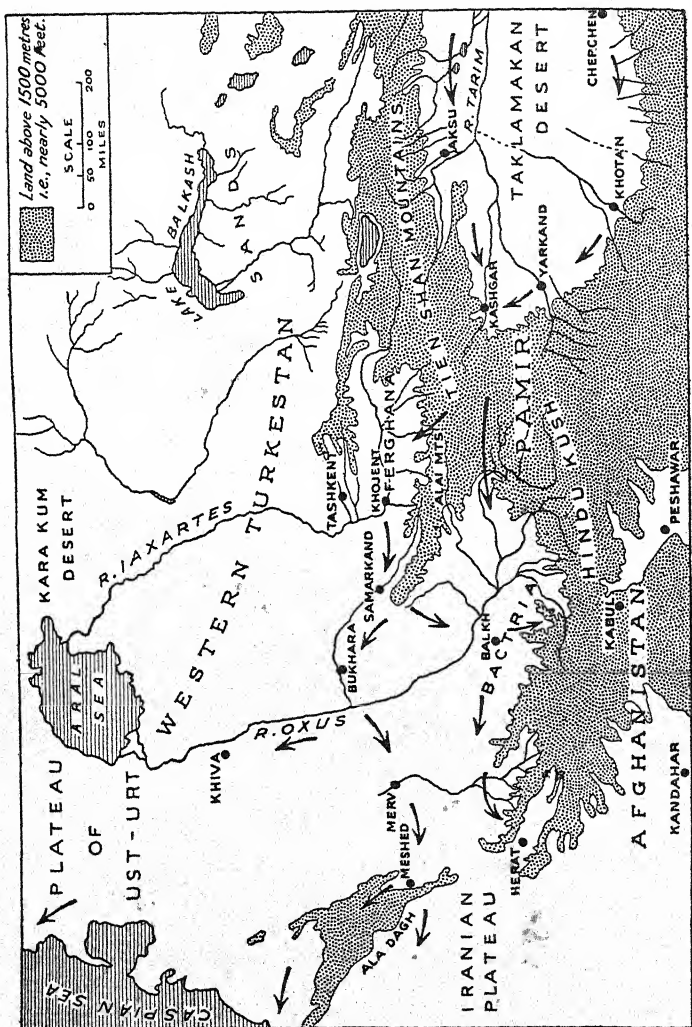


FIG. 61.—The heartlands of Central Asia.

(The arrows indicate the mediæval routes from China to the west.)

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ing of the Arabian crust-block, which once extended unbroken into northern Africa. Along the zone of shattering, subsidence took place and the sea entered the sunken trough. The Persian Gulf, in contrast, is part of a great "sunkland" or trough which extends northwards into Mesopotamia.

The valley of the lower Nile, which was navigable, and those of the Euphrates and Tigris, which were scarcely navigable up-stream, maintain the north-south direction of the Red Sea and Persian Gulf respectively, and indicate land passages towards the Mediterranean Sea. Across the waist of Asia, therefore, two alternative routes were offered. The one which passed through Egypt involved the use of boats on the Nile and a passage by caravan across the high eastern desert of Egypt to the Red Sea ports. The other led from the ports of Syria and Palestine to the valley of the Euphrates or Tigris, whence by boat or by road the Persian Gulf could be reached.

From the outlet of the Red Sea and from the Persian Gulf India was reached at first by coasting. Similarly, by a number of coasting voyages from port to port the products of China were brought westwards by seamen familiar with different stretches of the coasts and waters. When, about the year A.D. 50, the Greek seaman Hippalus used the south-west monsoon to steer a direct course from the Persian Gulf to western India, he showed that sea routes might be followed, shorter and quicker than the old coastwise sailings. Since the monsoons blow from the south-west in summer and from the north-east in winter, they could be utilized both for outward and homeward voyages.

Each sea had its own physical peculiarities in respect of winds, channels, coasts, and harbours. Thus, in the Red Sea, where northerly winds were prevalent and where the coasts were inhospitable, much local knowledge was necessary to navigators. The Strait of Malacca, between Sumatra and the Malay peninsula,

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afforded the usual and most direct access from the Indian Ocean to the China Sea.

It is not certain whether, as Herodotus related, Phoenician seamen circumnavigated Africa from east to west about the year 600 B.C. Even if they did, their enterprise bore no results. The opening-up of the oceanic route from Europe to India, the East Indies, and China, awaited the discoveries of Portuguese navigators. Bartholomew Diaz discovered the Cape of Good Hope in 1494, and Vasco da Gama sailed as far as Calicut in western India in 1498. Why was the route by way of the Cape of Good Hope discovered so late? In part at least, because it involved very serious navigational difficulties in the days of sail. The west African coast in tropical latitudes is barren and inhospitable; moreover, north of the Equator ships had to pass through an area of calms—"the doldrums"—which long proved forbidding and called for both great courage and skill. Further, it was necessary to understand and to utilize the wind systems to the north and south of this obstacle. Actually, when merchantmen came to frequent this route, they learned to make good use of the many island groups of the southern Atlantic and to steer courses which made best use of the prevailing winds. As a result, their courses were by no means coastwise or direct: in order to take advantage of the north-east winds in tropical latitudes ships steered a south-westerly course which brought them towards the coasts of Brazil (Fig. 6). Some East Indiamen, *en route* for India, actually touched the coast of Brazil at Rio de Janeiro! In the Indian Ocean and the China Sea ships depended on the monsoons, and the times of sailing were closely adapted to their periodical occurrence.

We have indicated above what were the possible lines of intercourse between Europe and China; let us now briefly sketch some stages in the history of their interrelations.

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It has already been suggested that archæological evidence shows that ideas and practices reached China overland in prehistoric times. At a much later time, in the 6th century B.C., some highly specialized "socked celts" (bronze axes), which in much earlier times had been widely used in central and south-eastern Europe, found their way overland to China. Rather later, about the year 450 B.C., the existence of China is recorded for the first time in European literature. According to Herodotus, a Greek named Aristes, in the 6th or 7th century B.C., claimed to have journeyed across Central Asia as far as the Djungarian Basin and the Altai mountains (see Fig. 60). There he heard of the Chinese as a settled and prosperous people who dwelt by a never-frozen sea. A legend recorded in the time of Herodotus described the Chinese as "vegetarians"; this is not without geographical interest, since it emphasizes their distinctness as cultivators living on grain, from the nomadic peoples of the steppe, who lived on meat and milk. In Herodotus' day, too, the Scythians, themselves Asiatic nomads who were established on the south Russian plain westwards of the lower Don, traded by caravan with Asiatic peoples as far east as the Altai mountains (Fig. 60). Caravans started from the Greek city of Tanais, which stood at the mouth of the Don; they passed southwards of, not across, the Ural mountains, thus using the broad Ural-Caspian Gate. In the course of their trade along this route the Scythians needed interpreters of seven languages—so many different peoples occupied the land. At the end of their journey they probably exchanged metal goods, horse-trappings, and rugs in return for gold, derived from the south-eastern side of the Altai.

The caravan route of the Scythians, owing to political disturbances in Asia, was closed soon after 400 B.C., and later Greek geographers retained little knowledge of the country through which it had passed. They even forgot that the Caspian was an enclosed sea! Nor does

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it appear that the Persian Empire entered into relation with China at this time, although its territories extended to the Aral Sea and included western Turkestan. When, in 329 B.C., Alexander the Great overthrew the Persian Empire and advanced into Bukhara and southern Turkestan, he did not attempt further conquests in Central Asia. Not without good reason, for beyond the oases of Merv, Bukhara, and Samarkand, where agriculture and fixed settlements were established, stretched deterrent lands—an alien world of open steppe above which rose the lofty ramparts of the Hindu Kush and the Tien-Shan (see Fig. 61). Alexander founded some military and civil centres, such as Khojent on the Iaxartes River, but these outliers of Greek culture in Asia were soon abandoned to a conquering nomadic people, the Yue-chi.

What efforts were made by China itself to establish relations with the West? In the year 128 B.C. the Emperor Wu Ti, of the Han dynasty, sent an embassy to the Yue-chi, whose court lay near Bukhara. This embassy—which eventually reached Ferghana, Bukhara, and Bactria (see Fig. 61)—had important results. It provided China with the geographical knowledge on which it based an imperialistic policy in Central Asia. It led also to the introduction into China of the vine, which the Greeks had brought into Bukhara and Samarkand. The Chinese policy of western expansion proved successful. By defeating the Huns, a powerful nomad people who occupied Mongolia, China extended its dominion as far west as the oases of Ferghana. It sent embassies to Parthia and Bukhara, and some exchanges were made of gold and silk, then unknown in the west, for their local products, especially the coveted horses of Ferghana. The Chinese themselves, therefore, as a result of their imperialism, came into contact with west Asian peoples who dwelt beyond the mountain-desert divide of the Tarim Basin, the Tien-Shan and the Hindu Kush.

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The knowledge and use of silk spread into the Græco-Roman world during the 1st century B.C. from Parthia, a strong and independent state which occupied the Iranian plateau and was thus well placed to become an intermediary between China and the Mediterranean lands. The silk route from China passed along the northern foot of the Nan-Shan and Altyn Tagh mountains to Lop Nor ; thence it continued across the Tarim Basin (Chinese Turkestan) to Kashgar, keeping along either the northern or the southern flank of the Taklamakan desert ; finally, it crossed the high Pamir plateau into the oases of Ferghana, and passed through Merv into Parthia (see Figs. 58 and 61).

A flourishing trade between the Roman Empire and China, which reached its height in the 2nd century A.D., was established less by means of the overland route through Parthia than by the use of the sea routes, especially that which led to Egypt (Fig. 62). Silk was the first among many products sought from China, and its importation on an increasing scale was effected with the aid of intermediaries—Arabs, Indians, Parthians, and Chinese. Roman citizens themselves, in particular Greeks, Syrians, and Jews, controlled directly only the western part of the routes. It was the supremacy of Rome in the Mediterranean, in Egypt, and in the Red Sea, towards the end of the 1st century B.C., which provided political conditions favourable to the growth of trade with the East, particularly by the Egypt-Red Sea route. Rome did not open up this route for the first time ; the Ptolemaic rulers of Egypt had already used it. With the aid of the monsoons, however, which speeded up the voyage between the Gulf of Aden and India, the Egyptian route acquired a new importance. The ports of peninsular India offered the Roman world not only their own local products, such as spices, cottons, gems, and gold, but also Chinese silks, pearls, and drugs, which reached them by diverse routes, either directly by sea, or over-

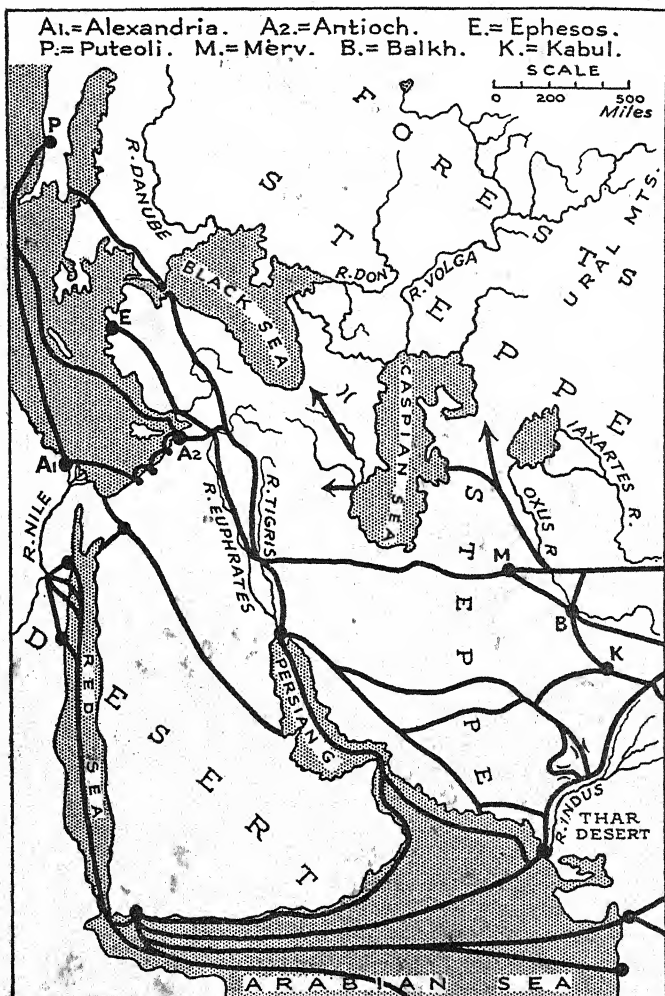


FIG. 62.—The "waist" of Asia.
 (Roman routes are shown.)

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land by long and difficult routes : across the Khyber Pass to the Indus valley ; via Tibet and Sikkim to Patna and thence to the Ganges delta ; and even through Burma and Siam to the ports at the mouths of the Irrawaddy and Salween rivers.

In the towns of Egypt and Syria, especially at Alexandria and Antioch, which stood at terminals of the sea routes, silk goods were finished off or remade for the Roman market.

In the 2nd century A.D. some Roman sailors actually reached China directly by sea, by rounding Cape Comorin in southern India and passing through the Strait of Malacca. They used the south-west monsoon to carry them into the South China Sea, and landed at Hanoi in Tongking, which was then part of China. But the seaway between India and China, familiar and frequented as it was by Chinese junks and Indian dhows, was not used to forge direct links between Rome and China ; no official embassy seems to have reached Rome from China or vice versa, although by China one attempt to establish diplomatic relations was made.

During and after the 3rd century A.D., when the power of Rome was declining, its indirect trade relations with China weakened. The Abyssinian kingdom of Axum cut the Red Sea route by its conquest of lands on either side of the Strait of Bab-el-Mandeb and the Gulf of Aden, so that it was able to control the Red Sea "gate" (see Fig. 62). The silk trade passed into the control of the Abyssinians and the Persians, who, in A.D. 224, inherited by right of conquest the Parthian Empire. Silk continued to reach Syria by the overland route via Kashgar, and when, in A.D. 330, the capital of the Roman Empire was moved to Constantinople, that city became another terminus of the overland route. Early in the 6th century, as a result of a trade agreement between Persia and Axum, the former was able to create a monopoly of the silk trade ; prices rose steeply in the Roman market, but the situation was

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eased dramatically by the introduction of silk-moth eggs into Europe for the first time. About the year A.D. 552, some eggs of the Chinese silk moth *Bombyx mori*, hidden in a bamboo cane, were brought to Constantinople. The closely guarded secret of sericulture, which China had so long and profitably exploited, thus reached Europe, and the rearing of the silk moth was successfully undertaken in the Roman lands of Syria and southern Greece.¹ The Chinese monopoly in silk production was therefore undermined. With the rapid increase of silk production in Syria and Greece, the Roman Empire became largely independent of Chinese supplies, and the workshops of Constantinople, which became famous for their luxurious silken fabrics, including the imperial "purple" itself, had a sufficient local supply of raw material.

For some six centuries after the 6th century A.D., Christian Europe virtually broke off intercourse with China, about which it knew and remembered little. There are many reasons to account for this. Political conditions were disturbed alike in Europe, China, and western and central Asia, and Europe had silk supplies of its own, especially from Greece. Moreover, the Arab Caliphate, which reached its maximum extent in the 8th century, stood interposed, as a hostile and "infidel" power, between Europe and the Far East, for its territories in Persia, Egypt, and Syria, and around the Aral Sea stood astride most of the routes to the Far East (see Fig. 63). The Seljuk Turks, too, a warlike nomadic people, held sway during part of this period over large areas of central and western Asia.

The creation in the 13th century of the vast Mongol Empire, which is associated with the name and family of Genghiz Khan, made possible direct overland communication with China. From their homeland on the Mongolian steppes, the Mongol horsemen conquered more extensively than the Chinese had ever done.

¹ See above, Chapter VII., p. 152.

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China itself, together with Korea, Central Asia, Persia, and even Russia, fell under their control (Fig. 64). Europe itself was threatened by Mongol armies which advanced into Poland, Hungary, and Silesia, but they did not succeed in permanently holding these marginal lands, and effectively their empire ended at the western terminals of the Eurasian steppe belt. The great Khanate, as the Mongol Empire was called, depended for its unity on horse-riding and the horse caravan as

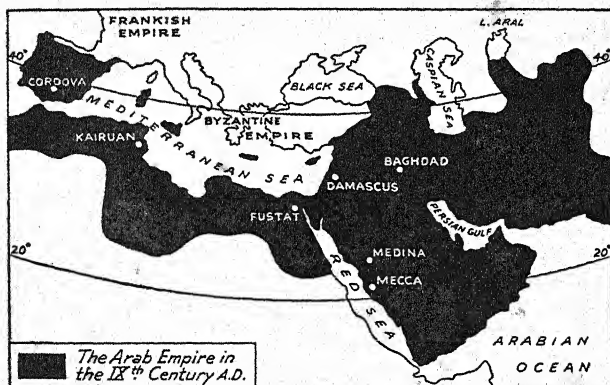


FIG. 63.—The Arab Empire at its maximum extent.

(Note that this extensive land area lay astride most of the routes between Europe and the Far East.)

means of communication and transport. Although it was divided into a number of khanates, ruled in turn by sons and grandsons of Ghengiz Khan, the overlordship of the Great Khan was generally admitted, so that order and security were established from the coast of the Pacific to those of the Black Sea and the Persian Gulf. China, with its dense population, its agricultural wealth, and its numerous cities and seaports, formed the heartland of the Mongol Empire, and (in 1264) the capital was moved from Mongolia to Peking and Xanadu,

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which became respectively the winter and summer seats of the Great Khan and his court.

As a result of the Mongol supremacy, a new chapter began in the story of Europe's relations with China. Much use was made of overland routes as well as of the sea route to the Persian Gulf (Fig. 64). During the

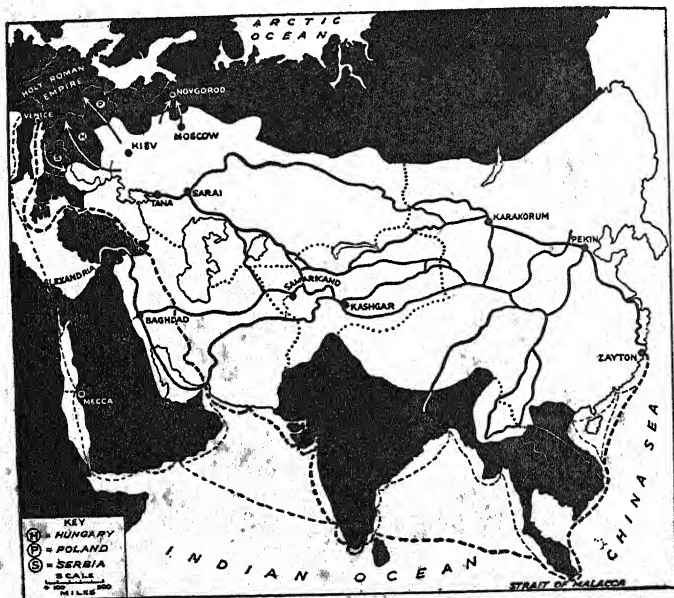


FIG. 64.—The routes between Europe and China and the extent of the Mongol Empire (left white), *c.* A.D. 1290.

13th century the Venetians and Genoese in turn established trading stations in the Crimean peninsula at western terminals of the overland route. In this century, too, the Venetian merchants Nicolo and Maffeo Polo made their overland journey to Peking, and when, between 1271 and 1275, they returned to the court of

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the Great Khan, Marco Polo, the son of Nicolo, accompanied them. Marco Polo's famous account of Central Asia and China, which was based on seventeen years sojourn there in the service of the Great Khan, described graphically and almost unbelievably to Europeans the splendour and quality of Chinese civilization, although it is well to remember that for some three centuries before Marco Polo's *Travels* appeared, the Moslem world, in contrast to the Christian, possessed detailed accounts of China and Central Asia. In the 14th century Christian missions were established at Peking and at Zayton (near Amoy) in south China, where Genoese merchants are known to have resided.

In short, Europe rediscovered China, the Seres of antiquity, which they now knew as Cathay. The silk trade revived; finished fabrics rather than raw silk were imported. China, it would seem, made technical contributions to Europe; the making of paper from rags reached Europe from China via the Arab world, whilst it is possible that Germany received from the Korea the invention of movable type,¹ which made practicable in the mid-15th century the printing of books on a large scale.

One final phase, we may note, in the long story of the intermittent and slender relations between Europe and China—the discovery of the oceanic routes to Cathay. The stimulus to this maritime enterprise was at least in part economic—the Portuguese desire to challenge the monopoly in the eastern trade which was enjoyed by Venice and Genoa. The closure of one of the old routes to China, owing to the capture of Constantinople in 1453 by the Ottoman Turks, provided an additional motive for the discovery of new routes. In 1514, after they had defeated the Arabs in the Indian Ocean and captured Malacca, the Portuguese sailed thence to

¹ For a discussion of this unsettled problem, see G. F. Hudson, *Europe and China* (1931), pp. 165-68.

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China. Later they were allowed to settle in Kwangtung at Macao near Hong Kong, which eventually became, as it still remains, a Portuguese possession. Dutch, English, and others sought trade in Chinese goods, either directly at Chinese ports or at intermediate places in Malay and Indo-China. Silk goods, the drug rhubarb, porcelain, lacquer work, and, especially in the 18th century, tea formed the chief products sought from China. Yet another route to China lay unexplored—that across the great expanse of the Pacific Ocean. Magellan's ship, which circumnavigated the world in the service of Spain between 1519 and 1522, reached, by way of the Pacific, the Philippine Islands on the threshold of the Chinese world. In 1571 a Spanish fleet crossed the Pacific from Mexico and seized Manila in the Philippine Islands. In thus opening up a new sea route to the Far East by a voyage westwards, Spain succeeded in achieving the purpose which had baffled Christopher Columbus.

READING LIST

THE first task of a geographer is the reading of maps, and the use of an atlas or atlases in the study of the relations between geography and history is indispensable. Above all, the student will find a general physical atlas, such as Philip's *The University Atlas* (1937), of great help; an historical atlas, too, should be consulted.

CHAPTER I

GEOGRAPHY AS AN HISTORICAL DOCUMENT

There are few works in English on the relations between geography and history. A pioneer study is *The Relations of Geography and History*, by H. B. George (1st ed., 1901; 5th ed., 1924). *A Geographical Introduction to History* (1925), by L. Febvre, is a stimulating if super-critical review of its subject. The reader will find many illustrations of the operation of geographical factors in European history if he refers to *An Historical Geography of Europe* (1935), by W. G. East. Many aspects of the history of England also are examined geographically in *An Historical Geography of England before 1800* (1936), edited by H. C. Darby.

CHAPTER II

GEOGRAPHICAL POSITION

This topic usually finds a place in geographical studies of particular countries. For a classical account of the position of Britain see Sir H. J. Mackinder's *Britain and the British Seas* (1902), chap. i.

CHAPTER III

CLIMATE AND HISTORY

The reader may be referred to two works of C. E. P. Brooks, the chief English contributor in this field: *The Evolution of*

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Climate (1922) and *Climate through the Ages* (1928). The subject of past climates and their relation to history forms the theme of many works by Ellsworth Huntington, to which references are given in *Climatic Changes* (1932), by E. Huntington and S. S. Visser.

CHAPTER IV

ROUTES

On the old roads of England the reader will find much help in H. J. Randall's *History in the Open Air* (1936), chap. ii., which includes a short bibliography. A small booklet, priced at sixpence, was issued by H.M. Stationery Office in 1932: *Field Archaeology*. It is a useful guide for a beginner who wishes to understand some of the many evidences of pre-history which are visible in the countryside. Three historical maps, issued by the Ordnance Survey, show former road systems: *Map of Roman Britain* (2nd ed., 1932, with notes), *Seventeenth-Century England and Wales* (1930); and a facsimile of the Gough map, which is discussed in the article by F. M. Stenton, cited at the foot of page 74, above. Finally, much information on the past communications of England, together with maps, can be found in H. C. Darby, *op. cit.*

CHAPTER V

TOWNS

Studies of particular towns have to be sought in many learned journals. On the origin of towns the reader may turn to V. Gordon Childe's *Man Makes Himself* (1936). For a short survey of towns in their many aspects, see D. V. Glass's *The Town* (1935). Niles Carpenter's *The Sociology of City Life* (1931) discusses many matters of geographical and historical interest. There is a short account of the origin of European towns in W. G. East, *op. cit.*, especially in chapter vi.

CHAPTER VI

FRONTIERS AND BOUNDARIES

For short general discussions of political frontiers and boundaries see Lord Curzon's *Frontiers* (1907), and C. B. Fawcett's *Frontiers* (1918, out of print). F. de Lapradelle's

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La Frontière (1928), though mainly concerned with the legal aspect, has much to say of geographical and historical interest, and gives numerous references to other works. On the Welsh and Scottish Borders see respectively W. Rees's *South Wales and the March, 1284-1415* (1924), and D. L. W. Tough's *The Last Years of a Frontier: a History of the Border during the Reign of Elizabeth* (1928).

CHAPTER VII

HABITAT AND ECONOMY

For general discussions of the relationship between economic activities and the physical environment see P. Vidal de la Blache's *Principles of Human Geography* (1926); J. Brunhes's *Human Geography* (1920); and L. Febvre, *op. cit.* For particular historical illustrations see C. D. Forde's *Habitat, Economy and Society* (1934); W. G. East, *op. cit.*; and H. C. Darby, *op. cit.*

CHAPTER VIII

THE DAWN OF CIVILIZATION

The works of V. Gordon Childe give clear and authoritative expositions of the beginnings of civilization. See his *More Light on the Most Ancient East* (1933), *The Dawn of European Civilization* (1925), and *Man Makes Himself* (1936). For a general discussion of the origin of civilizations see A. J. Toynbee's *A Study of History*, vol. ii. (2nd ed., 1935). J. L. Myres's *The Dawn of History* (1911) gives due weight to the geographical factor in the rise of ancient civilizations and states. H. J. E. Peake and H. J. Fleure in *The Corridors of Time* summarize, on a chronological basis and in relation to the geographical background, the succession of early cultures.

CHAPTER IX

EUROPE AND CHINA

On this broad topic the following works serve as an introduction: G. F. Hudson's *Europe and China: A Survey of their Relations from the Earliest Times to 1800* (1931); E. E. Power's "The Opening of the Land Routes to Cathay" (during the period 1245-1345), in *Travel and Travellers of the*

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Middle Ages (1930), edited by A. P. Newton ; E. H. Warmington's *The Commerce between the Roman Empire and India* (1928) ; and C. N. Parkinson's *Trade in the Eastern Seas, 1793-1813* (1937). Many valuable papers on the historical geography of China by P. M. Roxby have been published in *Geography*.

A valuable atlas, by A. Herrmann, is the *Historical and Commercial Atlas of China* (Harvard University Press, 1935). A recent and competent account of travel through Central Asia is Sir E. Teichman's *Journey to Turkestan* (1937). Marco Polo's *Travels* was issued in a convenient edition in The Travellers' Library in 1928.



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